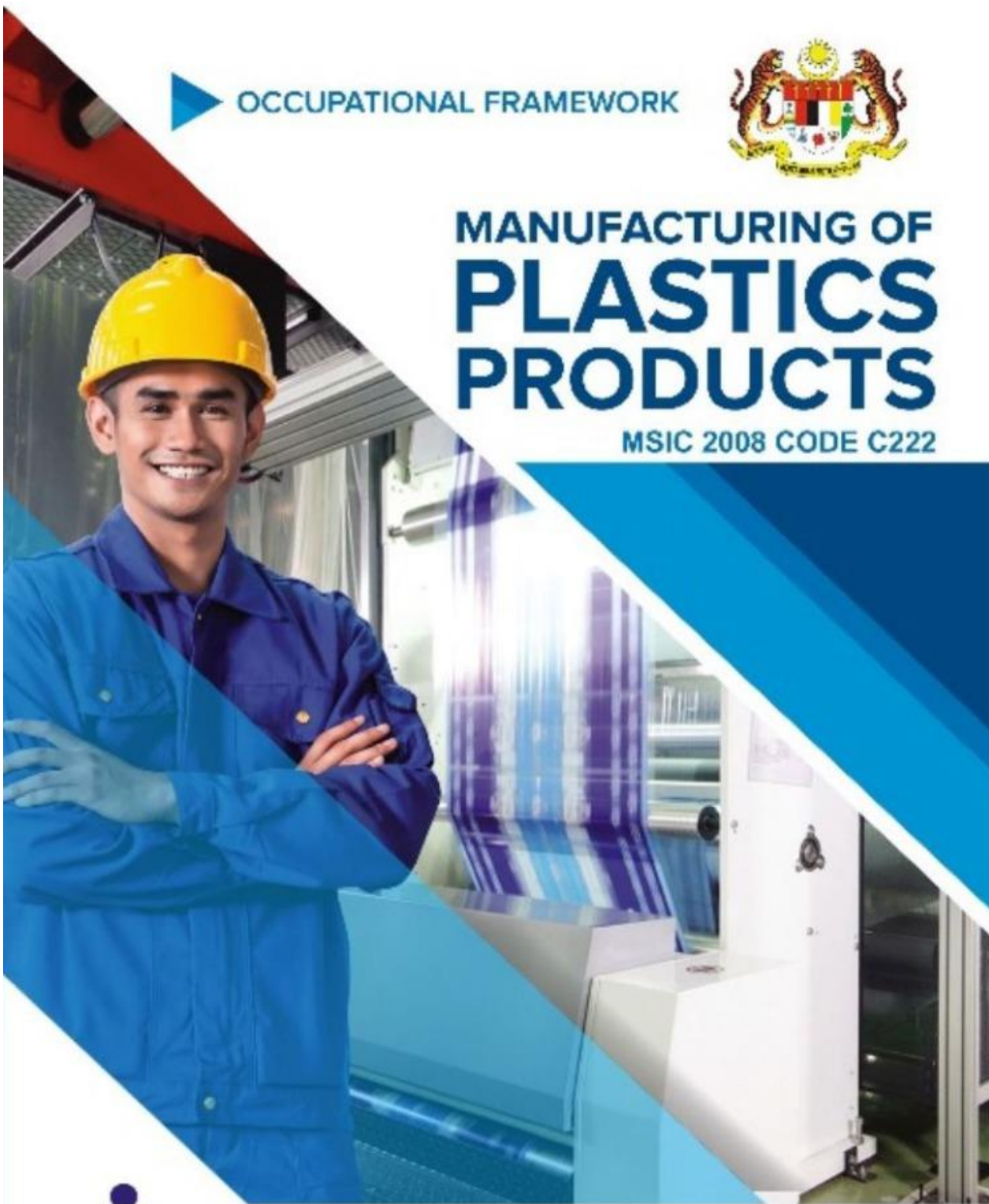


 OCCUPATIONAL FRAMEWORK



MANUFACTURING OF PLASTICS PRODUCTS

MSIC 2008 CODE C222



JABATAN PEMBANGUNAN PERSEKUTUAN
KEMENTERIAN SUMBER MANUSIA
*Department of Skills Development
Ministry of Human Resources, Malaysia*



SkillsMalaysia





OCCUPATIONAL FRAMEWORK
SECTION C: MANUFACTURING
GROUP 222: MANUFACTURE OF PLASTICS PRODUCTS



JABATAN PEMBANGUNAN KEMAHIRAN
KEMENTERIAN SUMBER MANUSIA

Department of Skills Development
Ministry of Human Resources, Malaysia

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ABSTRACT

The Malaysian plastics industry is a well-established industry with a strong performance record and is an important contributor to high skilled and high-income employment. The plastics industry is considered one of the most dynamic growth sectors in the Malaysian manufacturing sector. The Malaysian plastics industry is a major supporting industry to many other important sectors including the electrical and electronics (consisting primarily MNCs), automotive and food packaging industries, through the supply of plastics parts and components and plastics packaging materials. The Malaysian Plastics Manufacturing Association (MPMA) is the major representative body of the industry. Throughout the years, MPMA has been emphasising and allocating resources to the training and skills upgrading of our members. In order for the industry to have an orderly and structured training programme, MPMA developed its first Malaysian Plastics Industry Technology Roadmap in 2009. The Roadmap was further reviewed and subsequently revised in 2016 to consider new market developments and changes in technology. The Roadmap is aimed at transforming the Malaysian plastics industry into a world class player. To achieve world-class status, plastics manufacturers need to improve their competencies and shift from lower value-added activities, to new competencies or higher skills through capacity building and training. The Occupational Framework (OF) for the Manufacture of Plastics Products is a key tool for identifying, reporting and monitoring the skills demand and supply in the Malaysian plastics industry. The OF includes the OS of the plastics industry, the career paths for human capital and the generic list of job responsibilities for the workers in the plastics production sector. The OF is a preliminary process in developing relevant National Occupational Skills Standard (NOSS) for the industry. The NOSS developed would be used as a reference document to conduct skills and certification trainings. The OF for Manufacture of Plastics Products is based on the Malaysian Standards Industrial Classification 2008 (MSIC 2008) under Division 22, Group 222 – Manufacture of Plastics Products. The industry represents one of the most innovative sectors in the economy, which combines all of the key future technologies including electronics, robotics, materials and software integration and thus a key player in the next industrial revolution – Industry 4.0. The total number of job area identified is 46 with 210 job titles. A total of 94 job titles identified as relevant to Industry 4.0. The OF for Manufacture of Plastics Products is divided into several chapters. In order to develop the OF on the Manufacture of Plastics Products, all information related to the aforesaid sector was gathered through literature review and workshop sessions with industry experts.

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GLOSSARY

Component	Part of system.
Occupational Framework	The outcome of the occupational analysis process to identify the occupational structure of an industry consists of Occupational Structure (OS), Job Description (JD) and Skills in Demand.
National Occupational Skills Standard (NOSS)	Specification of the competencies expected of a skilled worker who is gainfully employed in Malaysia in an occupational area, level, and pathway to achieve the competencies and is gazetted in Part IV of National Skills Development Act 652.
Scope of study	Scope and delimitation of the study are two elements of a research paper that inform the reader what information is included in the research and explain why the author chose that information. Although the scope and delimitation explain the way a study is limited, this information adds credibility to research.
Acts	A formal decision, law, or the like, by a legislature, ruler, court, or other authority; decree or edict; statute; judgment, resolve, or award.

LIST OF ABBREVIATION

CBT	Competency Based Training
DESCUM	Development of Standard and Curriculum
DOE	Department of Environment
DOSH	Department of Occupational Safety and Health
DSD	Department of Skills Development
E&E	Electric & Electronics
EU	European Union
FGD	Focus Group Discussion
ITA	Investment Tax Allowance
ILB	Industry Lead Body
IR 4.0	Industry Revolution 4.0
OA	Occupational Analysis
OF	Occupational Framework
OD	Occupational Description
OS	Occupational Structure
MIDA	Malaysian Investment Development Authority
MITI	Ministry of International Trade and Industry
MOSQF	Malaysian Occupational Skills Qualification Framework
MQA	Malaysia Qualification Agency
MQF	Malaysian Qualification Framework
MPMA	Malaysian Plastics Manufacturing Association
ML	Manufacturing License
MSIC	Malaysian Standard Industrial Classification
MSC	Malaysian Skills Certificate
MSD	Malaysian Skills Diploma
MSAD	Malaysian Skills Advanced Diploma
NOSS	National Occupational Skills Standard
PIA	Promotion of Investment Act
PS	Pioneer Status
RMCD	Royal Malaysian Customs Department

CHAPTER 1 INTRODUCTION

1.1 Chapter Introduction

This chapter explains the objectives, scope and problem statements of the Occupational Framework (OF) on the Manufacture of Plastics Products. The concept of OF and its function in the area of skills training and curriculum development are also elaborated in this chapter.

There have been various NOSS documents developed for plastics products manufacturing industry. The analysis on the Occupational Structure (OS) of this area of specialisation under the Ministry of Human Resources (MoHR) was last developed in 2013. This study and analysis are important to ensure the plastics sector requirements for human capital development are identified.

1.1.1 Research Background

OF is a process of acquisition and use of information about human capital development requirements, economic trends, job demand, and job responsibilities. The analysis only focuses on manufacturing of plastics products. The content of the analysis is important, so that based on the findings/knowledge, it would assist the industry to plan its future course of action. The analysis also determines the industry's economic performance and its benchmark against neighbouring countries. The methodology includes document analysis and focus group discussions.

1.1.2 National Skills Development Act 2006 (Act 652)

The National Skills Development Act 2006 (Act 652) came into effect on 1st September 2006, after it was officially gazetted on 29th June 2006, with the mandate of promoting skills training, the development and improvement of a person's abilities which are needed for vocations, and to provide for other matters connected therewith. The Act 652 is significant because, for the first time in the history of skills training in Malaysia, a national legislation has been enacted solely and exclusively for skills training and development. In addition, the meaning and scope of skills training have been clarified and given a statutory interpretation that can be used to distinguish it from other components of the country's national education and training system. The Act 652 also provides for the implementation of a Malaysian Skills Certification System, leading to the award of five (5) levels of

national skills qualification, namely Malaysian Skills Certificate Level 1, 2 and 3; Malaysian Skills Diploma, Level 4; and Malaysian Skills Advanced Diploma, Level 5.¹

1.1.3 Malaysia Qualification Framework (MQF)

The Malaysia Qualification Framework refers to the policy framework that satisfies both the national and international recognised qualifications. It comprises of titles and guidelines, together with the principles and protocols covering articulation and issuance of qualifications and statements of attainment. The element of the qualification framework indicates the achievement for each qualification title. It will also provide progression routes for all the graduates in the respective occupational fields.

The MQF has eight levels of qualification in three sectors and supported by lifelong education pathways as shown in the Figure 1.1. MQF Charts. DSD governs the skills sector, of which there are five (5) levels of skills qualification. The definition for each level of skills qualification is specified in Malaysian Occupational Skills Qualification Framework (MOSQF).

MQF Levels	SECTORS			LIFELONG LEARNING
	Skills	Vocational and Technical	Higher Education	
8			Doctoral Degree	Accreditation of Prior Experiential Learning (APEL)
7			Master's Degree	
6			Bachelor's Degree	
5	Malaysian Skills Advanced Diploma	Advanced Diploma	Advanced Diploma	
4	Malaysian Skills Diploma	Diploma	Diploma	
3	Malaysian Skills Certificate 3	Vocational and Technical Certificate	Certificate	
2	Malaysian Skills Certificate 2			
1	Malaysian Skills Certificate 1			

Figure 1.1: Malaysia Qualification Framework (MQF) Chart

¹ Department of Skills Development. Guidelines for Occupational Framework Action Research 2018: http://www.skillsmalaysiainvite.gov.my/wp-content/files_mf/1402092228SMIGuideBook.pdf

1.1.4 Occupational Framework

OF is the outcome of the occupational analysis process to identify the OS of an industry. OF which was previously known as Occupational Analysis (OA) consists of OS, Job Description (JD) and Skills in Demand. The development of the OF is a preliminary process in developing relevant National Occupational Skills Standard (NOSS). The NOSS shall then use as the basis to conduct skills training and skills certification of competent personnel.

1.1.5 National Occupational Skills Standard (NOSS)

National Occupational Skills Standard (NOSS) is defined as a specification of the competencies expected of a skilled worker who is gainfully employed in Malaysia in an occupational area, level, and pathway to achieve the competencies and is gazetted in Part IV of National Skills Development Act 652. NOSS is developed by the sector experts based on the needs of the sector and is utilised as the main tool in the implementation of the Malaysian Skills Certification System in which the performance of existing sector workers and trainees are assessed based on NOSS for awarding of a Malaysian Skills Certificate.

1.1.6 Competency Based Training (CBT)

Competency Based Training (CBT) is an approach to vocational training which emphasises on what a person can do in a workplace as a result of education and training obtained. CBT is based on performance standards which are set by the sector with the main focus on measuring the performance while considering knowledge and attitude rather than the duration taken to complete the course. CBT is a learner-centric; outcome-based approach to training which allows each individual to develop skills at their own pace for a similar outcome, thus meaning training practices can be customised for each individual to achieve a similar outcome. CBT concept is the basis of the Malaysian Skills Certification system which is coordinated by DSD.

1.2 Objective of Study

The objectives of the study are as below:

- i) To produce an OS from data analysis, interviews, site visits and focus group;
- ii) To determine job descriptions of each job title from the OS; and
- iii) To investigate the skills in demand in the sector.

1.3 Scope of Study

The scope of work for the study to develop OF are as listed below:

- i) To conduct the literature review on the current sector;
- ii) To consult with relevant sector representatives to obtain expert input for the determined sector;
- iii) To perform focus group discussion with the sector representatives, interviews, and/or any other methods in order to achieve the study outcome.

1.4 Justification for MSIC Section Selection

The selection of MSIC's Section C, Manufacturing and Division 22² for this study is based on the following justifications:

- i) The scope of Manufacturing of Plastics Products industry is in tandem with the description of Group 222 under Section C: The division includes the specialised repair of goods produced in the manufacturing sector with the aim to plastics product. This group includes the processing of new or spent (i.e. recycled) plastics, resins into intermediate or final products, using such processes as compression moulding, extrusion moulding, injection moulding, blow moulding and casting. For most of these, the production process is such that a wide variety of products can be made.
- ii) The current NOSS registry as published in i-NOSS³ (retrieved on May 2018) has grouped specific NOSS under division 22. The complete list of NOSS developed under this division is laid out in Chapter 2 under subtopic 2.5.

² Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p62>.

³ Department of Skills Development, Malaysia: <http://inoss.gov.my/index.php/main>

1.5 Chapter Conclusion

This preliminary chapter discusses on the scope and outcome of the OF development. The main purpose of conducting OF analysis is to produce an OS from data analysis, interviews, site visits and focus group discussion. Also, the analysis is to determine job descriptions of each job title from the OS and to investigate the skills in demand for the sector.

The scope of development for the Manufacturing of Plastics Products OF is based on the Malaysia Standard Industrial Classification 2008 (MSIC Version 1.0) structure so as to ensure that the job classification is defined in the same Section, Division and Group. This chapter also provides the definition and summary of Competency Based Training (CBT) which is the adopted methodology used in Malaysia for the implementation of skills training.

In order to conduct the OF for the Manufacture of Plastics Products, all the information related to the aforesaid sector will be compiled through literature review and brainstorming sessions with experts from the sector which will be further discussed in the next chapter.

CHAPTER 2 LITERATURE REVIEW

2.1 Chapter Introduction

This chapter emphasises on the explanation of the plastics manufacturing industry. It focuses on the current scenario in Malaysia, introduction to government bodies and related government policies, the industry's development plans and a brief overview of its competitors at international level.

The findings in this chapter were obtained via literature review, observation, interviews with sector practitioners and discussions during workshops with development panel members. This literature review was further discussed with panel members so as to obtain an insight into the matters at hand from a practitioner's perspective.

2.2 Definition of Research Area

The research area focusses on activities of manufacturing of plastics products. As stated earlier, the definition of the research area is aligned with MSIC. Based on MSIC 2008⁴, definition and scope of coverage of the OF is as per Table 2.1.

Table 2.1 : MSIC Group Manufacturing for Plastics Products

MSIC Section	C	Manufacturing
MSIC Division	22	Manufacture of Rubber and Plastics Products
MSIC Group	222	Manufacture of Plastics Products

This division is characterised by the raw materials used in the manufacturing process. However, this does not imply that the manufacture of all products made by these materials are classified here.

This group (MSIC Group 222)⁵ includes the processing of new or spent (i.e. recycled) plastics, resins into intermediate or final products, using such processes as compression moulding, extrusion moulding, injection moulding, blow moulding and

⁴ Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my>. p62.

⁵ Ibid

casting. For most of these, the production process is such that a wide variety of products can be made.

2.3 Scope of Occupational Framework Based on MSIC 2008

The scope of study for this analysis is based on the production activities of the plastics product. Plastics production activities from the product development stage, production operation and quality management, which include primary and secondary process. By means, the content covered in this document is industrial services that generally relates to the production of plastics product.

2.3.1 MSIC Definition

a. MSIC Section (C – Manufacturing)⁶

Table 2.2: MSIC Section and Description

Classification	Code	Description
Section	C	Manufacturing
		This section, Manufacturing, includes the physical or chemical transformation of materials, substances, or components into new products, although this cannot be used as the single universal criterion for defining manufacturing (see remark on processing of waste below). The materials, substances, or components transformed are raw materials that are products of agriculture, forestry, fishing, mining or quarrying as well as products of other manufacturing activities. Substantial alteration, renovation or reconstruction of goods is generally considered to be manufacturing. This section includes manufacture of food products, beverages, tobacco products, textile, wearing apparel, leather, wood and products of wood and cork (except furniture), articles of straw and plaiting materials, paper and paper products, printing and reproduction of recorded media, coke and refined petroleum products, chemicals and chemical products, basic pharmaceutical products and pharmaceutical properties, rubber and plastics products, other non-metallic mineral product, basic metal, fabricated metal products, except machinery and equipment, computer, electronics and optical products, electrical equipment, machinery and

⁶ Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p76>.

Classification	Code	Description
		equipment N.E.C., motor vehicles trailers and semi-trailers, other transport equipment, other manufacturing, repair and installation of machinery and equipment. Units engaged in manufacturing are often described as plants, factories or mills and characteristically use power-driven machines and materials-handling equipment. However, units that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public of products made on the same premises from which they are sold, such as bakeries and custom tailors, are also included in this section. Manufacturing units may process materials or may contract with other units to process their materials for them. Both types of units are included in manufacturing. The output of a manufacturing process may be finished in the sense that it is ready for utilization or consumption, or it may be semi-finished in the sense that it is to become an input for further manufacturing. For example, the output of alumina refining is the input used in the primary production of aluminium; primary aluminium is the input to aluminium wire drawing; and aluminium wire is the input for the manufacture of fabricated wire products. Manufacture of specialized components and parts of, and accessories and attachments to, machinery and equipment is, as a general rule, classified in the same class as the manufacture of the machinery and equipment for which the parts and accessories are intended. Manufacture of unspecialized components and parts of machinery and equipment, e.g.: engines, pistons, electric motors, electrical assemblies, valves, gears, roller bearings, is classified in the appropriate class of manufacturing, without regard to the machinery and equipment in which these items may be included. However, making specialized components and accessories by moulding or extruding plastics materials is included in class 2220. Assembly of the component parts of manufactured products is considered manufacturing. This includes the assembly of manufactured products from either self-produced or purchased components. The recovery of waste, i.e. such as the processing of waste into secondary raw materials is classified in class 3830 (Materials recovery). While this may involve physical or chemical transformations, this is

Classification	Code	Description
		not considered to be a part of manufacturing. The primary purpose of these activities is considered to be the treatment or processing of waste and they are therefore classified in Section E (Water supply; sewerage, waste management and remediation activities). However, the manufacture of new final products (as opposed to secondary raw materials) is classified in manufacturing, even if these processes use waste as an input. For example, the production of silver from film waste is considered to be a manufacturing process. Specialised maintenance and repair of industrial, commercial and similar machinery and equipment is, in general, classified in division 33 (Repair, maintenance and installation of machinery and equipment). However, the repair of computers and personal and household goods is classified in division 95 (Repair of computers and personal and household goods), while the repair of motor vehicles is classified in division 45 (Wholesale and retail trade and repair of motor vehicles and motorcycles). The installation of machinery and equipment, when carried out as a specialized activity, is classified in 3320

b. MSIC Division (22 – Manufacture of Rubber and Plastics Products)⁷

Table 2.3: MSIC Division and Description

Classification	Code	Description
Division	22	Manufacture of Rubber and Plastics Products This division includes the manufacture of rubber and plastics products. This division is characterised by the raw materials used in the manufacturing process. However, this does not imply that the manufacture of all products made of these materials is classified here. GROUP 221 Manufacture of rubber products This group includes the manufacture of rubber products.

⁷ Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p137>.

Classification	Code	Description
		GROUP 222 Manufacture of plastics products This group includes the processing of new or spent (i.e. recycled) plastics resins into intermediate or final products, using such processes as compression moulding, extrusion moulding, injection moulding, blow moulding and casting. For most of these, the production process is such that a wide variety of products can be made.

c. MSIC Group⁸

Table 2.4: MSIC Group and Description

Classification	Code	Description
Group	222	Manufacture of Plastics Products This group includes the processing of new or spent (i.e. recycled) plastics resins into intermediate or final products, using such processes as compression moulding, extrusion moulding, injection moulding, blow moulding and casting. For most of these, the production process is such that a wide variety of products can be made.
Class	2220	Manufacture of Plastics Products Includes: a) 22201 Manufacture of semi-manufacturers of plastics products - Manufacture of semi-manufactures of plastics products (e.g. plastics plates, sheets, blocks, film, foil, strip, etc.) b) 22202 Manufacture of finished plastic products - Manufacture of plastic tubes, pipes and hoses; hose and pipe fittings c) 22203 Manufacture of plastic articles for the packing of goods - Manufacture of plastics articles for the packing of goods (e.g. Plastics bags, Sacks, containers, boxes, cases, carboys, bottles)

⁸ Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p137>

Classification	Code	Description
		d) 22204 Manufacture of builders' plastic ware - Plastic door, windows, frames, shutters, blinds, skirting boards - Tanks, reservoirs - Plastic floor, wall or ceiling coverings in rolls or in the form of tiles, etc. - Plastic sanitary ware (e.g. plastic baths, shower baths, washbasins, lavatory pans, flushing cisterns, etc.) Excludes: a) manufacture of plastic luggage, see 1512 b) manufacture of plastic footwear, see 15202 c) manufacture of plastic in primary forms, see 20131 d) manufacture of articles of synthetic or natural rubber, see group 221 e) manufacture of plastic furniture, see 3100 f) manufacture of mattresses of uncovered cellular plastic, see 31003 g) manufacture of plastic sports requisites, see 3230 h) manufacture of plastic games and toys, see 3240 i) manufacture of plastic medical and dental appliances, see 3250 j) manufacture of plastic ophthalmic goods, see 3250 k) manufacture of plastic hard hats and other personal safety equipment of plastic, see 32909

2.4 Key Stakeholders

The key stakeholders for the plastics industry in Malaysia comprise of government agencies, regulatory bodies, industry associations and professional bodies.

2.4.1 Government Agencies and Regulatory Bodies

These are the Government Agencies that are empowered by the legislation according to the scope and powers are given in the related acts that directly regulate the manufacturing of plastics products sector in Malaysia.

Table 2.5: List of Stakeholder in Plastics Products Manufacturing Sector

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS, AND RESPONSIBILITIES
1.	Malaysian Investment Development Authority (MIDA)	Incorporated as a statutory body under the Malaysian Industrial Development Authority (MIDA) Act, the establishment of MIDA in 1967 was hailed by the World Bank as "the necessary impetus for purposeful, positive and coordinated promotional action" for Malaysia's industrial development. Today, MIDA's is Malaysia's cutting-edge, dynamic and pioneering force in opening pathways to new frontiers around the globe. MIDA assists companies which intend to invest in the manufacturing and services sectors, as well as facilitates the implementation of their projects. The wide range of services provided by MIDA includes providing information on the opportunities for investments, as well as facilitating companies which are looking for joint venture partners.⁹ MIDA has established several Divisions to facilitate the growth of different sub-sectors within the manufacturing industry. The plastics industry is under the purview of the Chemical and Advanced Materials Division. The function of the Chemical and Advanced Material Division is to support the Chemical and

⁹ Malaysian Investment Development Authority (MIDA): www.mida.gov.my/home/about-mida/posts.

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS, AND RESPONSIBILITIES
		Advanced Materials industries, including plastics, in the following manner¹⁰: • Evaluate applications for Manufacturing licences, tax incentives and expatriate posts • Conduct domestic specific project missions (DSPM) to encourage expansion/diversification by the local players and continuous engagement with captains of the industry to develop the industry and its ecosystem • Organise specific seminars and conferences • Organise briefing and dialogue with relevant industry associations to identify the roadblocks, direction and development of the industry • Identify and promote industries with potential for development in Malaysia • Monitor the development of approved projects • Handle specific enquiries relating to industry MIDA and MPMA are in close collaboration to address the issues faced by the plastics industry as well as to promote awareness on MIDA's incentives and facilitations related to the plastics industry.
2.	Ministry of International Trade and Industry (MITI)	The Ministry of International Trade and Industry (<i>Kementerian Perdagangan Antarabangsa dan Industri</i>), abbreviated MITI, is a ministry of the Government of Malaysia that is responsible for international trade, industry, investment, productivity, small and medium enterprise, development finance institution, halal industry, automotive, steel, strategic trade. The Minister of International Trade and Industry administers his functions through the Ministry of International

¹⁰ Malaysian Investment Development Authority (MIDA): <http://www.mida.gov.my/home/staff-directory/posts/?group=60023eb69cfcaa383a08e20b5d22596a>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS, AND RESPONSIBILITIES
		Trade and Industry and a range of other government agencies.¹¹ MITI and MPMA are in consultations on formulation/revision of policies related to the plastics industry, including Free Trade Agreement negotiations, trade practices and labour related issues.
3.	Department of Occupational Safety and Health (DOSH)	A department under the Ministry of Human Resources. This department is responsible for ensuring the safety, health, and welfare of people at work as well as protecting other people from the safety and health hazards arising from the activities from various sectors. As a government agency, the department is responsible for the administration and enforcement of legislation related to occupational safety and health of the country, with a vision of becoming an organisation which leads the nation in creating a safe and healthy work culture that contributes towards enhancing the quality of working life.¹² Plastics production manufacturers are required to comply with DOSH requirements including regular health check for workers, control, labelling, handling and storage for harmful chemical, carry out Chemical Health Risk Assessment (CHRA), equipment safety audit and any other compliance requirement based on Occupational Safety and Health Act 1994 and Factories and Machinery Act 1967 (Revised 1974)
4.	Department of Environment (DOE)	The main function of the DOE is to prevent, eliminate, control pollution and improve the environment, consistent with the purposes of the Environmental Quality Act 1974 and the regulations thereunder DOE is also responsible for the implementation of the resolutions decided by the conventions of the international

¹¹ Ministry of International Trade and Industry (MITI): <http://www.miti.gov.my/index.php/pages/view/1977?mid=27>.

¹² Department of Occupational Safety and Health (DOSH): <http://www.dosh.gov.my/index.php/en/about-us/dosh-profile>

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS, AND RESPONSIBILITIES
		environment such as Vienna Convention for the protection of the Ozone Layer 1985, Montreal Protocol on Substances That Deplete the Ozone Layer, 1987, the Basel Convention on the Transboundary Movement of Hazardous Waste and Their Disposal Act 1989 and other areas while the success of programs of bilateral cooperation and multilateral cooperation between Indonesia, Singapore and other ASEAN countries on environmental management.¹³ Plastics production manufacturers are required to comply with DOE requirements, including water, air, noise pollution control and scheduled waste management.
5.	Royal Malaysian Customs Department (RMCD)	RMCD plays a role in driving economic growth and safeguarding security country and people's well-being through three main functions including collecting government revenue, providing facilitation to the commercial & industrial sector and enforcing the legislation.¹⁴ Plastics production manufacturers are required to comply with RMCD requirements to import and export plastics raw material and finished product according to the relevant Harmonised Commodity Description and Coding System (HS Code)

¹³ Department of Environment (DOE): <https://www.doe.gov.my/portalv1/en/tentang-jas/pengenalan/dasar-alam-sekitar>.

¹⁴ Royal Malaysia Custom Department (RMCD): http://www.customs.gov.my/en/ci/Pages/ci_ed.aspx

2.4.2 Industry Association and Professional Bodies

There is only one industry association that is related to this industry. The role and responsibilities of the association are described below:

Table 2.6: Industry Association and Professional Bodies & its Function

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES
1.	Malaysian Plastics Manufacturers Association (MPMA)	The Association was registered with the Registrar of Societies in 1967. MPMA is the official voice of the Malaysian plastics industry, representing its members and the industry in Government interaction, spearheading the plastics industry's growth by providing the platforms to assist members to be globally competitive.¹⁵ MPMA currently has about 750 members which represent about 60 percent of plastics manufacturers in the country and account for 80 percent of the country's total production of plastics products. The objectives of MPMA are as follows: - To promote the use, manufacture and processing of plastics. - To protect, assist and enhance the interest of manufacturers of plastics. - To organise and provide various means of training to help upgrade the technological level of the plastics industry. - To encourage co-operation among manufacturers of plastics products, both within and outside Malaysia. - To gather, analyse and provide statistical and technical data as well as other information of interest. - To provide a platform for members to interact and to foster closer rapport among members. - To cooperate with other trade associations, non-governmental organisations and other bodies of

¹⁵ Malaysian Plastics Manufacturers Association (MPMA)

NO.	ORGANISATIONS	OVERVIEW, ROLES, FUNCTIONS AND RESPONSIBILITIES	
		viii.	common interest to ensure the healthy growth of the plastics industry. To collaborate with the Government in the promotion of the plastics industry towards achieving the country's vision of becoming a developed nation by 2020.
		ix.	To promote the growth of the plastics industry and transform it into a global player taking into cognisance its social responsibility, via sustainability practices towards the environment and community.

2.5 Legislations, Policy and Initiatives

It is imperative that this research has to refer to legislation, bylaws and policies that are directly related to Manufacture of Plastics Products.

2.5.1 Government Legislations

The following legislation is relevant to the division of Manufacture of Plastics Products.

Table 2.7: List of Legislations and the related Enforcement Agency in Plastics Product Manufacturing

NO.	LEGISLATIONS	ENFORCEMENT AGENCY	DESCRIPTION OF LEGISLATIONS
1.	Factories and Machinery Act 1967 (Revised 1974)	Department of Occupational Safety and Health (DOSH)	This Act is to provide the control of factories with respect to matters relating to the safety, health and welfare of persons therein, the registration and inspection of machinery and for matters connected therewith. ¹⁶
2.	Occupational Safety and Health Act 1994		This Act is for securing the safety, health and welfare of persons at work, for protecting others against risks to safety or health in connection with the activities of persons at work. ¹⁷
3.	Promotion of Investments Act 1986	Ministry of Finance (MoF)	This Act covers investments in the manufacturing, agriculture, tourism (including hotel) and approved services sectors as well as R&D, training and environmental protection activities. The direct tax incentives grant partial or total relief from income tax payment

¹⁶ Department of Occupational Safety and Health (DOSH). Factories and Machinery Act 1967 (Revised 1974): <http://www.dosh.gov.my/index.php/en/list-of-documents/acts/26-03-factories-and-machinery-act-1967-revised-1974-acts-139/file>

¹⁷ Department of Occupational Safety and Health (DOSH). Occupational Safety and Health Act 1994: <http://www.dosh.gov.my/index.php/en/list-of-documents/acts/23-02-occupational-safety-and-health-act-1994-act-514/file>

NO.	LEGISLATIONS	ENFORCEMENT AGENCY	DESCRIPTION OF LEGISLATIONS
			for a specified period, while indirect tax incentives are in the form of exemptions from import duty, sales tax and excise duty. ¹⁸
4.	Industrial Coordination Act 1975	Malaysian Investment Development Authority (MIDA)	An Act to provide for the coordination and orderly development of manufacturing activities in Malaysia, for the establishment of an Industrial Advisory Council and for other matters connected therewith or incidental thereto. ¹⁹
5.	Environmental Quality Act 1974	Department of Environment (DOE)	This Act is for the prevention, abatement, control of pollution and enhancement of the environment, and for purposes connected therewith. ²⁰

¹⁸ Ministry of Finance (MoF). Promotion of Investments Act 1986:

<http://www.treasury.gov.my/index.php/en/tax/item/1160-promotion-of-investment-act-1986.html>

¹⁹ Malaysian Investment Development Authority (MIDA). Industrial Coordination Act 1975:

http://www.mida.gov.my/env3/uploads/Publications_pdf/Guide_For_MalaysianManufacturers/English/english.pdf

²⁰ Department of Environment (DOE). Environmental Quality Act 1974: https://www.doe.gov.my/portalv1/wp-content/uploads/2015/01/Environmental_Quality_Act_1974_-_ACT_127.pdf

2.5.2 Government Policies and Initiatives

Below are the policies and incentives that are relevant to the Manufacturing of Plastics Products in Malaysia.

i) Investment Policies for Plastics Industry

a. Guidelines of Manufacturing License

The Industrial Coordination Act 1975 requires manufacturing companies with shareholders' funds of RM2.5 million and above or engaging 75 or more full time paid employees to apply for a manufacturing license. The manufacturing license application will be processed by the Malaysian Investment Development Authority (MIDA).²¹

b. Guidelines for Expat post

The consideration of expatriate posts will be based on the company's requirement and merits of the case.

- The company must submit the following documents before the expatriate post can be considered:
 - Companies Commission of Malaysia
 - ML and/or Incentive
 - Business license
- Minimum basic salary of at least RM5,000 (term-post) and academic qualification with experience in related field.
- The approval will be automatically cancelled if the company failed to fill-in the approved expatriate post within one (1) year from the date of the approval letter.

²¹ Malaysian Plastics Manufacturers Association (MPMA). Government Policies, Facilitations & Assistance for The Plastics and The Mould and Die Industries in Malaysia:
http://www.mpma.org.my/Documents/1.0%20Presentation%20Slide_Chemical%20&%20Advanced%20Material%20Division%20.pdf

ii) Incentive for Targeted Plastics Sectors in Manufacturing

Below is the incentive for industry players from the Malaysian government

- a. Promoted List Under Promotion of Investment Act (PIA) 1986 – Related to Plastics (effective 22 March 2012)²²:

General List	Manufacture of plastics products, such as: • Specialised plastics films or sheets • Geosystem products • Engineering plastics products • Products moulded under clean room conditions • Biopolymers or products thereof • Manufacturing related services – recycling of waste such as: • Toxic & nontoxic waste • Biodegradable disposable packaging products and household wares
High Technology	Development and manufacture of advanced polymers and biopolymers
Small Scale	Manufacture of plastics products, such as: • Decorative panels & ornaments • Epoxy encapsulation moulding compound

- b. Main Incentives

General List	Pioneer Status (PS) • Income tax exemption ranging from 70% or 100% for a period of 5 or 10 years • Investment Tax Allowance (ITA) 60% or 100% on qualifying capital expenditure for 5 years. Can be offset against 70% or 100% of the statutory income.
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²² Malaysian Plastics Manufacturers Association (MPMA). Government Policies, Facilitations & Assistance for The Plastics and The Mould and Die Industries in Malaysia:
http://www.mpma.org.my/Documents/1.0%20Presentation%20Slide_Chemical%20&%20Advanced%20Material%20Division%20.pdf

Small Companies List	Pioneer Status (PS) • 100% income tax exemption for a period of 5 years Investment Tax Allowance (ITA) • 60% on qualifying capital expenditure for 5 years. Can be offset against 100% of the statutory income.
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c. Other Incentives

Reinvestment Allowance	60% on qualifying capital expenditure for 15 consecutive years. Under the 2016 Budget, the Malaysian Government has agreed to provide a special RA for 3 years to companies in manufacturing and selected agricultural sectors, whose RA have expired. (Year of assessment of 2016 - 2018) (Application to be submitted to the IRB)
Import Duty Exemption	For raw materials and components (Application to be submitted to Tariff Division, MIDA)
Others	Capital Allowance to Increase Automation in Labour-Intensive Industries • Incentive for Less Developed Areas • Green Technology Incentive

2.6 Industry and Market Intelligence

Industry and market intelligence are the collection and distribution of data on a sector by using a variety of approaches. The sector will be able to utilise this information to make business decisions, manpower developments and training requirements. Industry intelligence is critical for developing strategies in the areas of manpower development and the impact of those developments.

2.6.1 Current Plastics Industry Outlook in Malaysia

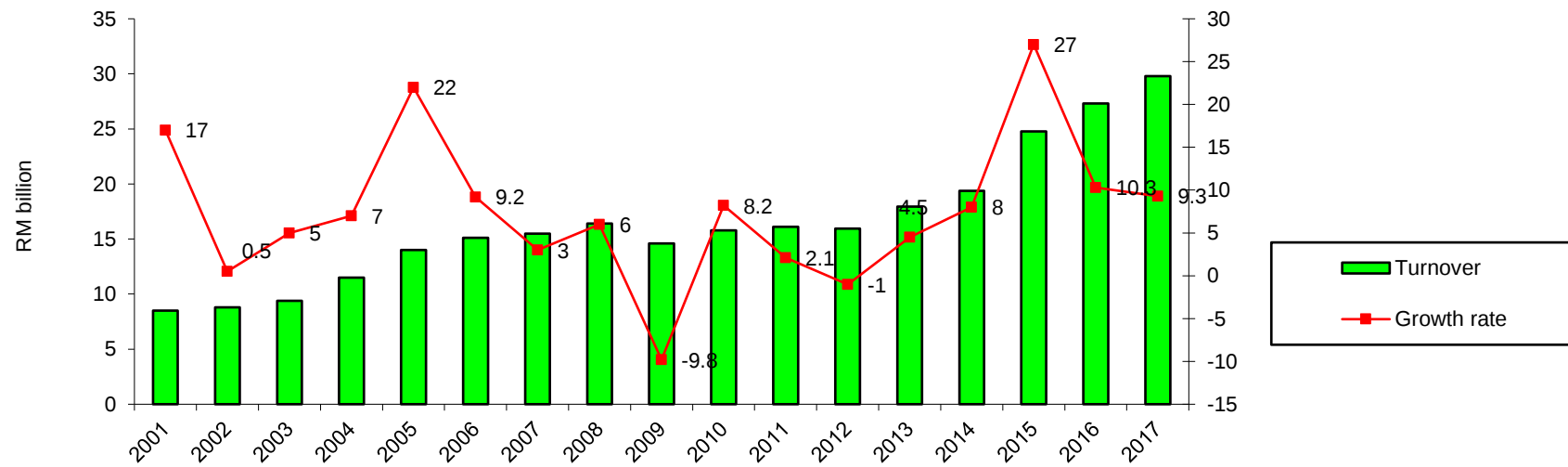
i) Overview

There are about 1,300 plastics manufacturing companies operating in both Peninsular and East Malaysia, with a total employment of 82,000 workers. In 2017, the plastics industry registered a total turnover of RM29.80 billion, representing an increase of 9.1% from RM27.32 billion in 2016. Exports increased substantially by 11.2%, from RM13.11 billion in 2016 to RM14.58 billion in 2017²³. Figure 2.1 shows the turnover and growth rate of the plastics industry from 2005 – 2017. Increased demand from developed countries, particularly the EU and Japan, had boost exports of plastics products, especially the substantial increase of 18.5% in export of plastic films.

In addition, Malaysia recorded a huge export of more than RM300 billion in 2017 of electrical and electronics products, which drove up demand for many plastics parts and components that were used in the E&E sector. This represents a huge indirect export of plastics products.

²³ Department of Statistics Malaysia (DOSM), Monthly Manufacturing Statistics (Various Issues): https://www.dosm.gov.my/v1/index.php?r=column/cpublication&menu_id=S2E5ZklhckxmejVSaFFJb29acXZvUT09

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Turnover (RM billion)	8.5	8.8	9.4	11.5	14	15.1	15.5	16.4	14.6	15.8	16.1	15.94	17.94	19.37	24.77	27.32	29.8
Growth rate (%)	17	0.5	5	7	22	9.2	3	6	-9.8	8.2	2.1	-1	4.5	8	27	10.3	9.3



Source: Department of Statistics

Figure 2.1: Turnover and Growth Rate of the Plastics Industry (2001-2017)

ii) Major market segments

The plastics industry is a major supporting industry to many other important sectors including the electrical and electronics, automotive, construction, agriculture and food packaging industries through the supply of plastics parts and components.

Packaging sub-sector, consisting mainly of bags and films as well as rigid materials (bottles and containers), is the largest market sub-sector which commands 48% of the total market share. About 90% of the bags and films produced are exported. This is followed by the electrical and electronics (E&E) sub-sector, 27%. The supply plastics parts and components are critical to support the growth of the E&E sub-sector, particularly, the consumer electronics which comprising mostly television and air-conditional units. The automotive and construction is the third largest sub-sectors, both commanding 8% of the total market share.²⁴ Plastics parts and components are mainly used to reduce the car weight. Breakdown of the major market segments for plastics product for 2017 is shown in Figure 2.2.

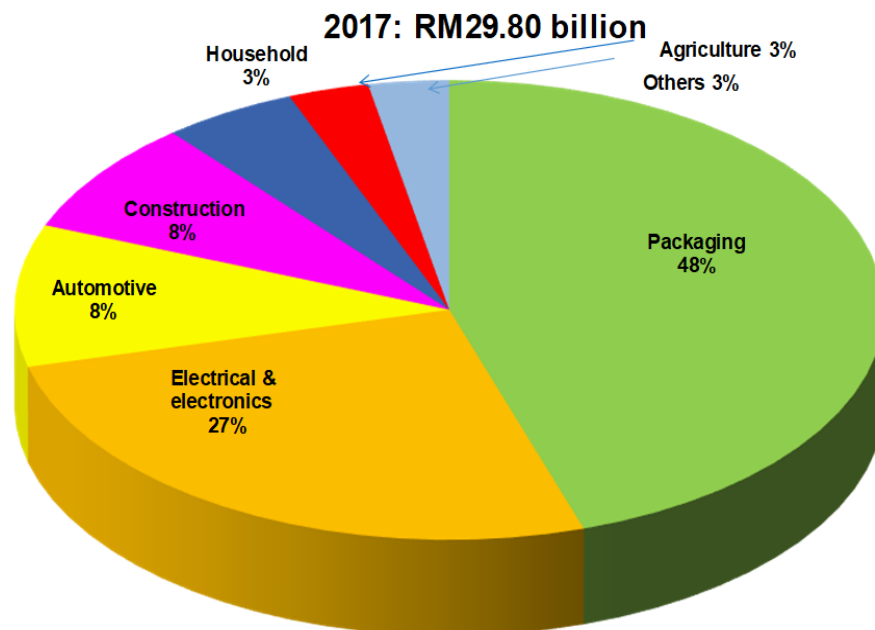


Figure 2.2: Major Market Segments for Plastics Product for 2017

²⁴ Malaysian Plastics Manufacturers Association (MPMA). Performance of The Malaysian Plastics Industry 2017 Report

iii) Exports

Malaysian made plastics products are well known for their consistent quality and competitive prices. Plastics products are mainly exported to the developed nations, including the European Union (EU), United States, Japan, Australia and Singapore. Based on data acquired from the Department of Statistics Malaysia, total exports of plastics products for 2017 amounted to RM14.58 billion, representing an increase of 11.2% from RM13.12 billion in 2016 as shown in Figure 2.3: Export and Import of Plastics Products (2001-2017).²⁵

Exports accounted for half of the total plastics products manufactured (RM29.80 billion). The sudden drop in export/turnover ratio in 2015 was due to a revised method of computation by the Department of Statistics. Despite the sudden change, the increasing exports/turnover ratio over the years as shown in Figure 2.4: Exports/Sales Turnover Ratio, indicated that Malaysian producers are expanding their market overseas instead of competing in the limited domestic market.

²⁵ Department of Statistics Malaysia (DOSM), Malaysia External Trade Statistics Online: <https://metsonline.stats.gov.my/>

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Export (RM billion)	3.72	3.92	4.53	5.57	6.67	7.67	8.38	9.3	8.3	9.4	10.15	10.05	10.7	11.94	12.96	13.12	14.56
Import (RM billion)	3.23	4.01	4.01	4.72	4.86	6	5.86	5.53	5	5.84	6.57	6.65	6.94	7.35	9.09	10	11.56

RM billion

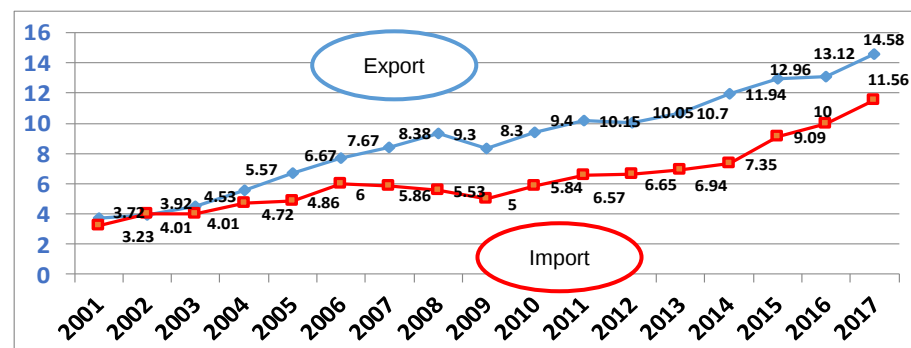


Figure 2.3: Export and Import of Plastics Products (2001-2017)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Turnover (RM billion)	8.5	8.8	9.4	11.5	14	15.1	15.1	16.4	14.6	15.8	16.1	17.1	17.9	19.4	24.6	27.3	29.5
E/T ratio	0.44	0.45	0.48	0.48	0.48	0.52	0.53	0.57	0.57	0.59	0.63	0.59	0.6	0.62	0.52	0.48	0.49

RM billion

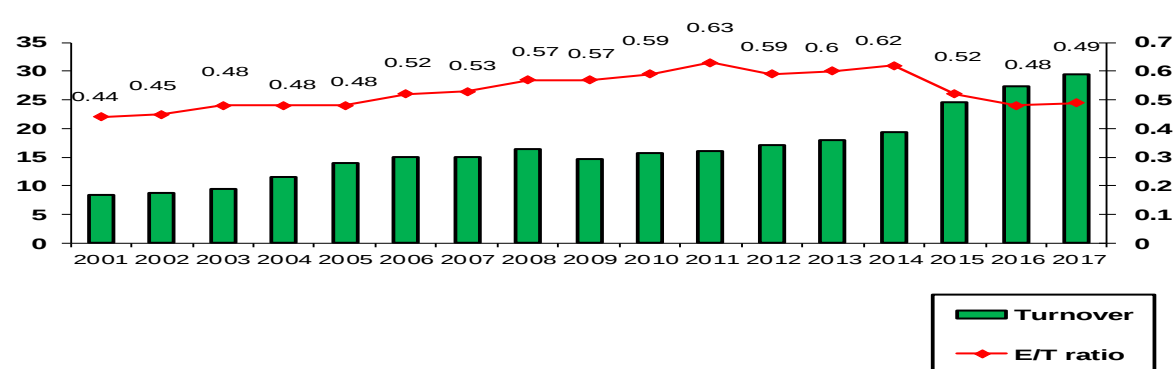


Figure 2.4: Exports/ Sales Turnover Ratio (2001 - 2017)

The main exported plastics items were bags, bottles and containers (RM5.85b at 32.8%), films and sheets (RM4.33b at 37.3%) and other plastics articles (RM 4.40b at 29.9%) as shown in Figure 2.5: Export of plastics products by types for 2017²⁶.

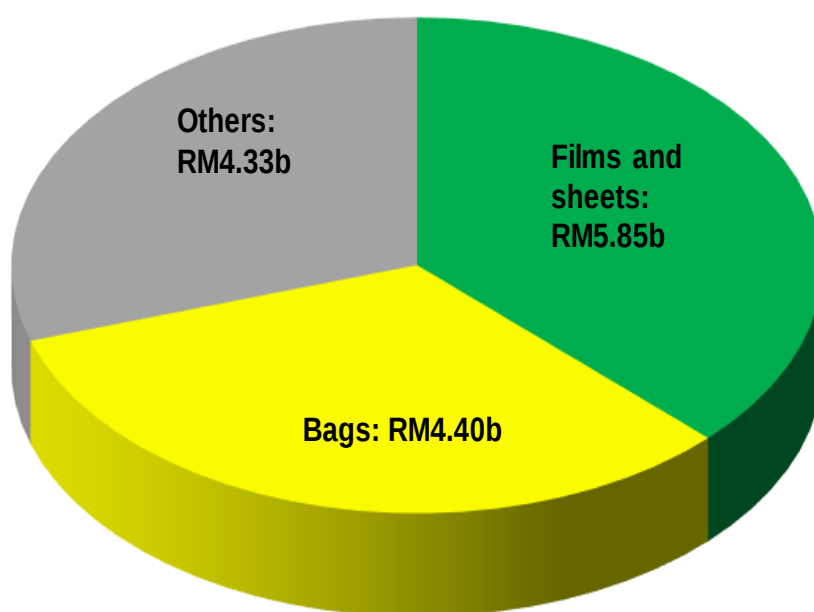


Figure 2.5: Export of plastics products by types for 2017

²⁶ Department of Statistics Malaysia (DOSM), Malaysia External Trade Statistics Online: <https://metsonline.stats.gov.my/>

Details on the breakdown of export items from 2010 to 2017 are shown in Table 2.8²⁷.

Table 2.8: Export of Plastics Products for 2012-2017

Item	TC Heading	Product Category	2012	2013	2014	2015	2016	2017
			RM'000	RM '000	RM '000	RM '000	RM '000	RM '000
1	3916	Monofilaments with cross-sectional dimension exceed 1 mm	46,587	38,624	39,102	27,297	35,910	46,657
2	3917	Tubes, pipes, fittings and hoses	319,028	367,415	505,487	681,260	562,240	623,233
3	3918	Floor, wall and ceiling coverings	50,936	103,690	53,630	93,276	111,097	96,506
4	3919	Self-adhesive plates, sheets, films, foils, strips, tapes, etc.	394,068	524,476	667,271	636,114	702,471	838,669
5	3920	Plates, sheets, films, foils, strips, tapes, etc.; non-cellular and not reinforced, laminated	2,769,409	2,904,690	3,350,329	3,592,108	3,672,939	4,386,399
6	3921	Other plates, sheets, films, foils, strips, tapes,	465,023	456,106	565,503	604,405	617,780	627,094
7	3922	Baths, wash-basins, seats and covers and other building materials	56,105	78,128	80,304	124,813	83,472	77,396
8	3923	Sacks and bags, boxes, casings, bottles & containers	3,473,557	3,688,201	3,987,379	4,251,559	4,108,021	4,401,097
9	3924	Tableware, kitchenware, other household articles and toilet articles	289,838	303,774	356,171	369,544	405,541	447,242
10	3925	Windows, doors, frames, tanks and other building materials	196,850	222,139	233,325	269,425	292,060	294,712
11	3926	Other plastics articles	1,988,871	2,010,820	2,103,973	2,314,955	2,521,080	2,736,915
Total:			10,050,269	10,698,064	11,942,473	12,964,756	13,112,611	14,575,920

²⁷ Department of Statistics Malaysia (DOSM), Malaysia External Trade Statistics Online: <https://metsonline.stats.gov.my/>

iv) Prospects

Plastics will continue to be “the materials” for many years to come due to its low cost, ease of manufacture, versatility, and imperviousness to water. Given that the domestic market is limited by its small population, the Malaysian plastics industry would strive to expand the export market. Competition in the export market is stiff, rivals are not only from this region - China, Indonesia, Thailand, Vietnam but also other third world nations. The drive to be world class standard can only be achieved by continue investing in people, machines and technology.

2.6.2 Emerging Technology for the Plastics Industry

i) Trends for Advanced Materials

Advanced materials are vital materials for everything from everyday household products to critical defence applications. The high level of global R&D investment in advanced materials is proof of their importance. A relatively new method to integrate information about materials using engineering performance analysis, computational tools, and process simulation have shown great potential in optimising manufacturing processes, materials, and products.

Currently, research activities address the development of (multi) functional materials. They are also known as intelligent, smart and responsive materials. The attribute ‘functional’ refers to a combination of properties which are essentially independent of each other. Accordingly, the related materials – apart from the required load bearing capability – exhibit ‘functional’ properties, such as shape memory, self-healing, sensing/actuation, electric conductivity and reprocess ability.

These and other recent advances in resin materials, improved automation, and factory connectivity all point to a bright future for plastics manufacturing. Researchers working at Harvard University’s Wyss Institute for Biologically Inspired Engineering have managed to create a new material that can mimic the outstanding toughness, strength, and versatility of insect cuticle, one of

nature's more exceptional substances. The new material called "Shrilk" is low-cost, biocompatible, and biodegradable. In the future, it could become a replacement for plastics in consumer products and they could even be utilised safely in various medical applications.²⁸

ii) New Product Development Approach for Plastics Industry

Based on the way forward of the industry, the product development methodology and process will encompass the following elements: -

- a. The manufacturing industry will be driven by reverse engineering;
- b. Precision parts are on the rise;
- c. Continued acceleration of the production of parts for electronics;
- d. 3D printing will reveal its staying power; and
- e. Manufacturing will become smarter

iii) Current and Future Application of plastics and composite

Some examples of important current and future applications arising from the plastics and composite development include the following sectors:

a. Transportation

Similar to the auto sector, air transportation is also going through a materials transformation with heavier materials being replaced by new polymer composites. New polymer composites in airplanes can actually significantly reduce fuel consumption, leading to less pollution and cheaper fares.

b. Medical:

Medical devices are also being developed. An example of this is the creation of a replacement hand that is produced using high-strength plastics. The artificial hand can actually look and work like a real human hand. It uses the electrical signals produced by the muscles of the patient's remaining limb to open and close the fingers.

²⁸ Aghababaie, Nikian. (2014). The Future: Design and My Part In It (Exploring the future of design with perspectives from Nikian Aghababaie's professional design standpoint).

c. Electronics

Laminar electronics are considered the new wave of the future. Compared to ordinary screens and cathode rays, LCD monitors utilise 65% less power. It is expected that in the near future, rolls of plastics (power) films that can transform light into electricity can be commercially manufactured.

d. Aerospace

Ablative plastics are utilised in the US space shuttles as a heat shield that prevents the shuttle from heating up as it enters the earth's atmosphere again. The heat is absorbed by the plastics and the plastics then burn off. The Canadian robotic arm on the Space Station is produced using a lightweight carbon fibre thermoplastic composite. This composite was chosen because of its stiffness, strength and capacity to withstand large amounts of radiation.

e. Defence

A new class of vessels for stealth naval defence is being produced using carbon fibre that is integrated with plastics that can help avoid detection – whether it is radar, visual, sonar, or infrared. Since they are less dependent on traditional materials and are instead built with a construction of carbon composite sandwiched materials (Glass, Kevlar, PVC), the hull weight of these ships are lowered by as much as 30%.

f. Food packaging

Intelligent food packaging helps extend the life span of food and protects our health. Technology developments have led to the creation of diagnostic plastics that can actually sense the bacterial presence. Plastics can increase the shelf-life of food because it absorbs ethylene gas, a plant hormone that initiates the process of senescence and decay.

2.6.3 The impact of Industry 4.0 to the Plastics Industry

The world is currently amidst a technological transformation that will change the way we live and work. The first industrial revolution started with the advent of steam and water power enabling mechanisation of production processes. The second industrial revolution was driven by electric power and mass manufacturing techniques. Information technology and automation brought in the third industrial revolution. The fourth industrial revolution will be backed by the convergence of technologies of the physical, digital and biological worlds is shown in Figure 2.6: Advancement and Convergence of Technologies.

Industry 4.0 will change the global landscape of manufacturing competition, reducing the relative competitive advantage of low-cost regions that rely on cheap labour. It will transform how products are designed, fabricated, used and operated as well as how they are maintained and serviced. It will also transform the operations, processes, supply chain management and energy footprint of factories. The focus sectors for industry 4.0 are reflected in Figure 27: Focus Sectors for Industry 4.0.

Nations and manufacturing firms that lead in embracing Industry 4.0 technologies and processes will gain over global competitors. This competitiveness hinges on the ability to transform by responding to market shifts and technology trends.

ADDITIVE MANUFACTURING	ARTIFICIAL INTELLIGENCE	BIG DATA ANALYTICS	ADVANCED MATERIALS	CYBER SECURITY
Additive manufacturing is advancing with the use of new materials opening completely new possibilities. For example, 3D printing of organic tissues has created opportunities for growing live organs. It is revolutionising traditional production, aided by a recent surge in metal additive printing.	AI is a concept that is made up of numerous subfields such as machine learning, which focuses on the development of programmes that can teach themselves to learn, understand, reason, plan, and act when exposed to new data in the right quantities. AI technology will supplement the smart factory towards networked factory, in which data from supply chains, design teams, production lines and quality control are linked to form a highly integrated and intelligent engines	Increasingly big data techniques are being applied in manufacturing industries to improve customer experience and product quality, realise energy efficiencies, and conduct predictive maintenance. It is now possible to collect masses of data from several different sources to direct decisions that anticipate product or equipment failure.	New materials and nano-structures are being developed that allow for beneficial material properties, e.g. shape retention or thermoelectric efficiency. Together with additive manufacturing technologies, it will allow for massive customisation and development of products that were not possible until now	The industrial communication is expanding and strongly connected, digital security becomes a critical aspect that must not be overlooked in the industrial environment. It has now become more complex, as it consists of connected devices and environments that cannot be protected by traditional cybersecurity approaches. Current cybersecurity has largely been developed for IT-centric devices and environments. The system is now facing new challenge on how to embed security functionality into the IoT devices with sophisticated cybersecurity.

SIMULATION	CLOUD COMPUTING	AUGMENTED REALITY	INTERNET OF THINGS	AUTONOMOUS ROBOTS	SYSTEMS INTEGRATION
While many engineers are already familiar with simulations in the field of product design, the advent of augmented reality, artificial intelligence and big data is expected to take simulations to the next level. It will be possible to simulate manufacturing processes using different production settings to find the optimal way to manufacture a product. Simulations can also be used to test product usage under different operating environment using different types of materials.	Past industrial revolutions required significant capital as a ticket to entry. With Cloud Computing many of the Industry 4.0 technologies can be made available to even smaller companies as a utility with minimal upfront capital investment. Companies can leverage cloud based product design, simulation, artificial intelligence, and big data solutions to improve their production processes and build products better suited for their customers.	While the initial Augment Reality technologies are still in nascent stages, they are advancing at a rapid pace. Some of the first applications can be found in the delivery of information and training. For example, Augmented Reality can be used to deliver part replacement instructions to maintenance staff in the field.	Industry 3.0 brought in an era of computing and inter-connectedness, but it often relied on humans to make even the trivial decisions. Industry 4.0 technologies embody an unprecedented proliferation of sensors and connectedness among these sensors. Combined with other technologies such as artificial intelligence and Big Data, it is now possible to envisage entirely autonomous systems that revolutionise manufacturing.	Machinery and robots are transformed towards its next generation. Robots can do more on its own, including learning on the job and team up with other robots and humans. This technology allows systems to think, act and react autonomously as well as conduct remote decision making. This can help contribute to a company's competitiveness, productivity and profitability.	System integration occurs in vertical (within the industry value chain) and in horizontal systems (across multiple value chains) eventually achieving end-to-end digital integration across the entire value chains.

Figure 2.6: Advancement and Convergence of Technologies

Electrical & Electronics	Machinery & Equipment	Chemical	Medical Devices	Aerospace	Other Sectors
The Electrical & Electronics industry is the leading industry in Malaysia's manufacturing sector, contributing significantly to the country's exports and employment	The Machinery & Equipment industry is one of the key areas for growth and development, focusing on high value-added and high technology M&E	The Chemical industry is one of the catalytic industries in the country with rapid growth due to the availability of oil and gas as a feedstock	The Medical device industry spans an extremely wide range of industries from rubber and latex, plastics, machinery and engineering support and electronics	The Aerospace industry has been designated as a strategic sector with high growth potential in the country's industrialisation and technological development programmes	• Automotive • Transport • Textiles • Pharmaceutical • Metal • Food processing • Services
Subsectors:	Subsectors:	Subsectors:	Subsectors:	Subsectors:	
• Electronics Components • Consumer Electronics • Industrial Electronics • Electrical Products	• Specialised M&E for specific industries • General industrial M&E, parts and components • Power generating M&E • Machine tools	• Petroleum products & petrochemicals • Plastics products • Rubber products • Chemical & chemical products • Oleo chemicals	• Consumables • Surgical instruments, clinical device & implants • Healthcare equipment	• Engineering & Design • Aero manufacturing System integration • Maintenance, Repair and Operations (MRO)	

Figure 2.7: Focus sector of Industry 4.0

Applied to the plastics processing processes, the fourth industrial revolution means the integration of supplier and customers, but also the much closer interlinking of internal departments and processes. Industry 4.0 allows manufacturers the opportunity to manufacture small batch sizes at the same cost as mass production by increasing efficiency, productivity and reducing wastes.

Industry 4.0 also affects the workforce and its capabilities. Growing automation needs and demand for digitisation are changing the nature of work and putting pressure on the present workforce by sector is shown in figure 2.7: focus sector of industry 4.0.

2.6.4 Growth of Plastics Industry

The Malaysian plastics industry is expected to growth in-line with the country's industrialisation development and strong support from the upstream petrochemicals industry. Currently, all the major type of plastic raw materials are able to source locally. Both the quantity and varieties of plastic raw materials will be further enhanced when the Petroliaam Nasional Berhad (Petronas) RM57 billion refinery and petrochemical integrated development project (RAPID) complete in 2021. With the stable and abundant of supply or raw material from local source, plastics manufacturers will be able provide timely and consistent of finished goods delivery to their customers in a more competitive manner.

The plastics industry registered a total of 46 projects approved in 2016 with investments of RM1.55 billion. A total of 24 of these are new projects with investments totalling RM1.25 billion while the rests were expansion and diversification projects with investments of RM303.3 million. A total of 25 approved projects were wholly Malaysian-owned (RM318.8 million), 12 projects were wholly foreign-owned (RM1.03 billion) and the remaining nine projects were joint-ventures (RM204.2 million). A total of 3,015 new jobs are expected from these projects in the plastics subsector.

In line with the booming phase of technology, the plastics industry continues to grow. One of the main contributors to the rapid growth is nanotechnology. It has revolutionised the plastics industry and simultaneously allowed a brighter future coming from advanced chemical and plastics industry hybrid products. Nanocomposites as additives in plastics have been proven to further improve the physical properties of traditional plastics. The offspring of the industry breed is tougher, more heat, dent and scratch-resistant, which means that overall it is far more superior to its precursor.

Plastics used to be known as a menace for the environment. However, with the advancing technology, this industry is ready to change this negative perception. As new studies reveal, waste plastics bags can be processed into a high-tech nanomaterial. The breakthrough in this innovation uses non-biodegradable plastics waste to synthesise "carbon nanotube membranes". This material is highly valued due to its versatility of functions in advanced applications ranging from energy storage, filtration, and also biomedical products. The innovations are made

possible by various government policies and incentives. To avoid existing plastics manufacturing activities from being labelled as sunset operations, the government has also devised new incentives for companies to invest in automation for their production. This initiative will reduce their dependency on unskilled workers and simultaneously boost their productivity.²⁹

2.6.5 INTERNATIONAL BENCHMARKING

i) Germany

As the Europe's largest producer of chemicals and plastics, Germany is Europe's leading plastics industry. The German plastics industry includes polymer manufacturers, convertors and machine manufacturers. With 3,350 companies employing a total workforce of around 396,000 people generating annual sales of EUR 92 billion in 2016, the plastics industry is one of the Germany's most important industry sectors.

There are more than 2,900 companies actively involved in the processing of plastics, employing 317,000 people and generating total sales of EUR 61 billion. The industry plays a major role in providing new and innovative products and solutions to a number of key industries including the automotive, mechanical engineering, packaging, electrical engineering and construction sectors. Growth and future (Industry 4.0) market trends are also making themselves present in the German plastics sector. Integrated additives manufacturing technologies will play an important role in changing production processes, from design to distribution and maintenance. Germany is setting the international standard as a plastics industry hub, with the country's leading-edge network of chemical industry parks and unique cluster concept providing industry actors with swift and easy access to parts of the plastics industry value chain.

The complete plastics value chain in Germany, from raw materials to R&D, ensures that new and innovative products are made to the highest possible technological standards. In 2016, more than 3,850 chemistry-related patterns

²⁹ Malaysian Investment Development Authority (MIDA). Malaysia Investment Performance Report 2016: http://www.mida.gov.my/home/administrator/system_files/modules/photo/uploads/20170302155931_Slides%20Presentation%20Malaysia%20Investment%20Performance%202016.pdf

granted by the European Patent Office made Germany the third largest inventor of chemicals after the US and Japan.³⁰

ii) Thailand

Thailand's plastics processing industry has grown rapidly in recent years and currently boasts over 5,000 manufacturing companies. However, unlike many of its ASEAN neighbouring countries, over 60% of the companies are relatively small with a maximum of 30 employees. Packaging accounts for 48% of Thailand's plastics consumption, followed by electronics (15%), construction (14%), and automotive (8%).

Thailand has been best positioned to capture the opportunity and attract manufacturing for its automotive sector, even though its overall cost index (for example, energy, labour, and property) is 20 to 25 % higher than Indonesia, Vietnam and the Philippines, largely because of a high quality and mature automotive manufacturing ecosystem, including tiered suppliers of automotive components. The country's automotive industry accounted for 42 % of its FDI from 2009 to 2013. In fact, green-field investment in tyre manufacturing generated most of the FDIs in Thailand's rubber and plastics industry. It has built a thriving ecosystem of manufacturers and assemblers, including BMW, Ford, Honda, Mazda, Mitsubishi, Nissan, and Toyota.

Thailand has also invested US\$ 60 million into bioplastics development over the past seven years, with the government pumping in 80% of this investment.³¹

³⁰ Germany Trade and Invest. The Plastics Industry in Germany – Germany Trade & Invest 2016 report: <http://www.gtai.de/GTAI/Navigation/EN/Invest/Industries/Materials-processing/plastics.html>

³¹ Thailand Convention & Exhibition Bureau 2017 report: <https://www.businesseventsthailand.com/about-us/annual-reports/>

2.7 List of National Occupational Skills Standards (NOSS) Relevant to The MSIC Section C, Group 222

The DSD has developed 13 NOSS related to Group 222, Manufacture of Plastics Products as of January 2018. The summary of NOSS title is provided in the table 2.9.³²

Table 2.9: Summary of NOSS developed under the Group 222
(Source: NOSS Registry May 2018)

MSIC Group	Corresponding NOSS/ Level	
222 Manufacture of Plastics Products	1. MC-100-3:2012	Plastic Production Operation L3
	2. MC-100-4:2012	Plastic Production Technology L4
	3. MC-100-5:2012	Plastic Production Technology L5
	4. MC-101-2:2015	Plastic Injection Moulding Operation Start Up L2
	5. MC-101-3:2015	Plastic Injection Moulding Operation Start Up Supervision L3
	6. MC-102-2:2015	Plastic Blow Moulding Operation & Maintenance L2
	7. MC-102-3:2015	Plastic Blow Moulding Operation & Maintenance Supervision L3
	8. PG-090-2:2010	Plastic Production Technician – OPP Film L2
	9. PG-090-3:2010	Plastic Production Supervisor – OPP Film L3
	10. C222-001-2:2017	Plastics Film Extrusion Process Operation L2
	11. C222-001-3:2017	Plastics Film Extrusion Process Supervision & Control L3
	12. C222-001-4:2017	Plastics Film Extrusion Processing and Administration L4
	13. C222-001-5:2017	Plastics Film Extrusion Management L5

³² Department of Skills Development (DSD). NOSS Registry May 2018. <http://dsd.gov.my/index.php/my/>

2.8 Chapter Conclusion

Malaysia's plastics industry is well-positioned to take advantage of growing demand for plastics parts and components globally. The plastics and plastics products industry are a dynamic and vibrant growth sector within the Malaysian manufacturing sector. Over the years, the plastics industry has been supporting the growth of related sectors as well as contributing to the emergence of new markets throughout the value chain. The growth will focus on the manufacturing of high value-added and advanced material.

To standardise the development of the document, the analysis is conducted based on the Malaysian Standard of Industrial Classification 2008 (MSIC) document. This is to ensure that the blueprint for the required analysis and development of human capital in this industry is in line with all the related agencies in Malaysia and also at international levels.

The requirements of Industry 4.0 were also studied and have been explained in the literature review. Based on the classification of MSIC, this industry division covers a wide spectrum of activities related to the production of plastics products for the primary and secondary processes. It also analyses the future human capital development of new emerging technologies.

The analysis also identifies key stakeholders involved in giving support, including government ministries and industry players. Currently, Malaysian Plastics Manufacturers Association (MPMA) is the only association that represents the plastics industry in Malaysia.

Based on the NOSS registry, there are 13 NOSS that have been developed and grouped under the Manufacture of Plastics Products. Most of the NOSS development are facilitated by MPMA. MPMA was appointed officially by the Department of Skills Development (DSD) as an Industry Lead Body (ILB) for the plastics industry.

As to the materials above, certain research methodologies will be employed. The description of research strategies and approaches is discussed in the next chapter.

CHAPTER 3 METHODOLOGY

3.1 Chapter Introduction

This section gives an overview of the strategies for data collection and potential analyses to be performed to meet the deliverables.

3.2 Overall Approach

In this study, qualitative analysis was selected as the main method of obtaining and analysing the necessary input for the Manufacture of Plastics Products OF.

Qualitative analysis was selected as the method of research because of the following:

- i) It investigates not only the what, where and when, but also the why and how of the decision-making process;
- ii) It requires smaller but more focused samples; and
- iii) It focuses on unique themes that illustrate the range of the meanings of the subject matter rather than the statistical significance of the occurrence.

This process uses inductive reasoning, by which themes and categories emerge from the data through the researcher's careful examination and constant comparison. This study uses a combination of the following methods to gather information:

- i) Document analysis;
- ii) Semi-structured interviews;
- iii) Industry site observation, and
- iv) Focus Group Discussion (FGD) workshops.

The figure below shows the operational framework of the research and the expected outcomes.

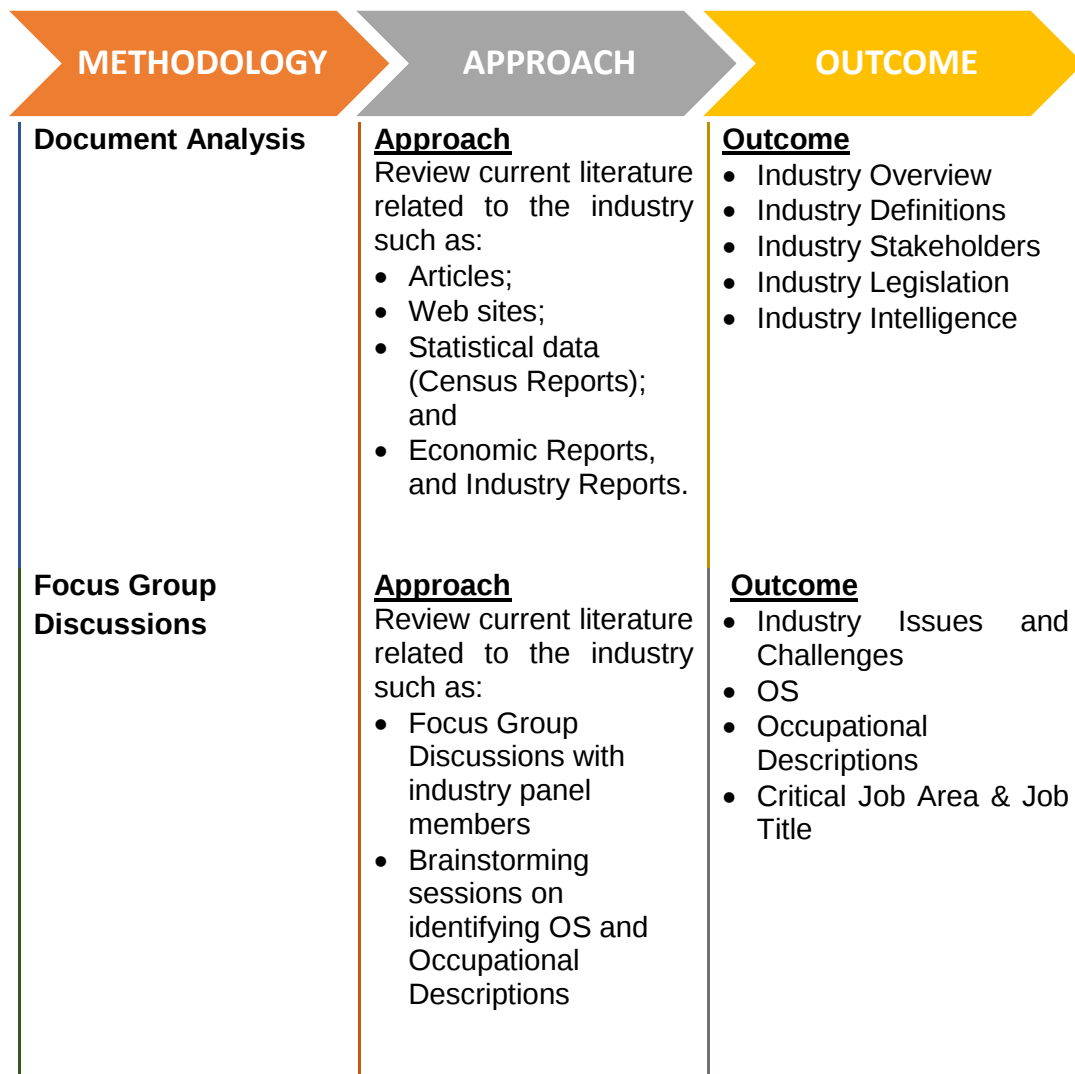


Figure 3.1: The Operational Framework of Research

3.2.1 Document Analysis

i) Data Collection Strategy

Document analysis or literature review was done in the Inception Phase to obtain an overview of the industry in terms of Industry Definition, Stakeholders, Acts and Industry Intelligence.

In this process, pertinent and relevant information published by the government, regulatory and professional bodies, news agencies, research agencies and any other sources relevant to the background information about the industry were reviewed and analysed. Most information obtained was mainly on the manufacturing of plastics product.

ii) Analyses

Details of the sources for the documents reviewed can be referred to in the Reference section of this report, but generally the documents referred to during the document analysis phase were as follows:

- i. Government Policies, Facilitations & Assistance for The Plastics and The Mould and Die Industries in Malaysia report, MPMA
- ii. Performance of The Malaysian Plastics Industry 2017 Report, MPMA
- iii. Malaysia Investment Performance Report 2016, MIDA
- iv. The Plastics Industry in Germany – Germany Trade & Invest 2016 report, GTAI
- v. Thailand Convention & Exhibition Bureau 2017 Report
- vi. MITI Annual Report 2016
- vii. MIDA Annual Report 2016
- viii. Eleventh Malaysia Plan
- ix. Department of Statistics, Economic Census Report
- x. Department of Statistics data on Employment and Industry Productivity
- xi. NOSS Registry May 2018
- xii. Malaysian Standard Industrial Classification (MSIC) 2008
- xiii. Official websites of industry stakeholders and legislation

iii) Outcomes

The outcome of this step is an overall view of the industry as described in Chapter 2 which includes the list of stakeholders (i.e. Regulatory bodies, related government agencies, industry associations), legislation, policies

and initiatives, industry, and market intelligence, MSIC scope of section and groups, plus the list of developed NOSS relevant to the Plastics Products Manufacturing industry.

3.2.2 Focus Group Discussion

i) Data Collection Strategy

The Focus Group Discussion (FGD) meetings with the development panel members was conducted to confirm the findings obtained during the document analysis and obtain industry intelligence information such as issues and challenges and use of Industry 4.0. This is due to certain information, especially for the industry intelligence section that is not available in the form of available literature.

The findings from these interviews will be tabulated and presented in Chapter 4 of this report as OS, Skills in Demand, Jobs in Demand and Emerging Skills. The information collected regarding organisation structures will be analysed during the following focus group discussion when determining the OS. Thematic reasoning will be used when analysing the data based on the main objectives of the research and guided by the research scope.

ii) Analyses

The facts obtained during the literature review were discussed and presented to the Development Panel members, comprising representatives from various sectors of the industry in focus group workshop sessions for their review and confirmation. The Focus Group Discussion was held on the 25th & 26th of June 2018. The attendees are listed in table 3.1.

Table 3.1: List of Focus Group Discussion (FGD) Participants

NO.	NAME	EXPERTISE AREA	POSITION & ORGANISATION
1	Ahmad Khairuddin Bin Sha'aban	Plastics Extrusion, Materials for Film Extrusion	Plastics Production Specialist Klang Hock Plastic Industries Sdn. Bhd.
2	Leong Peng Kong	Film Extrusion, Injection Moulding, Blow Moulding	Technical Advisor May-Plastics Sdn Bhd
3	Oh Beng Kooi	Film Extrusion	Managing Director Plast Konsep Training & Konsultancy PLT
4	Uthayakumar Ramaiah	Injection Moulding and Mould Development	Quality Assurance Manager Triplus Industry Sdn Bhd
5	Mohd Hafiz Bin Yacob	Injection Moulding	Quality Assurance Manager Guppy Plastic Industries Sdn Bhd
6	Abdul Mazlan Bin Abdul Razak	Materials for Film Extrusion and Injection Moulding	Head of Customer Service Support Petronas Chemical Group
7	Tan Weng Keong	Pipe Extrusion	Director Piping Technology Sdn Bhd
8	Woon Chee Yoong	Injection Moulding	Technical Service Manager Everyday Brush Industries (M) Sdn Bhd

Other than confirming the document analysis findings with the development panel, initial information was also obtained from the Focus Group Discussions such as the OS, Skills in Demand and Emerging Skills. The scope of the analysis was centred on the following key areas:

- a. Industry background;
- b. OS; and
- c. Skills in demand.

The dates, venue and activities of the industry engagement sessions involving industry players, government agencies and subject matter experts are as table 3.2:

Table 3.2: Industry Engagement Session

Date	Venue	Activity
25th – 26th June 2018	MPMA Conference Room, Petaling Jaya	• Identifying issues and challenges • Identification of new and emerging technology • Determining boundaries of Plastics Industry • Listing government initiative and support for plastics industry • Identifying critical job area and job title required by the industry

iii) Outcomes

The Focus Group Discussion members who are also considered as the core development panel members for this research, together with the facilitator have discussed the overall analysis requirement in the first Focus Group Discussion.

a. Section 1: Competency in Demand

This section explores the competency that is required by the industry. Another objective of this section is to identify the skills gap and areas to overcome the gaps.

b. Section 2: Jobs in Demand

This section aims to determine the category of workers that are in shortage of supply or oversupply. The category is based on Malaysian Standard Industrial Classification (MSIC) such as skilled workers, semi-skilled workers and low skilled workers.

c. Section 3: Emerging Skills

This section is trying to determine the readiness of industry players and the workers in the advent of IR4.0. The technology drivers or pillars of IR4.0 are listed and the respondents have to decide the relevancy of each element in their line of duty.

d. Section 4: Related Issues

This section is exploring the common issues surrounding the industry. The respondents are asked to suggest ways of overcoming those issues.

Table 3.3: Occupational Framework Development Session

Date	Venue	Activity
31 st July – 1 st August 2018	MPMA Conference Room, Petaling Jaya	• Confirmation of Preliminary Literature Search • Identification of OS • Confirmation of Preliminary Literature Search • Confirmation of OS • Development of Job Description

3.3 Chapter Conclusion

This chapter delves on the methodology used in the study, that is, through literature review and focus group discussions. The results of the OS and Occupational Description development and skills in-demand, which had been identified by the focus group and sector surveys, are presented in the next chapter - Chapter 4: Findings.

CHAPTER 4: FINDINGS

4.1 Chapter Introduction

This chapter elaborates the findings from the research works. The findings revolve around the objectives set for the study namely; to produce OS from data analysis, interviews, site visits and focus group; to determine job descriptions of each job title from the OS; and to investigate the skills in demand in the sector.

4.2 OCCUPATIONAL STRUCTURE (OS)

Table 4.1: Group 222 Occupational Structure (1 of 9)

Section (C) Manufacturing			
Division	(22) Manufacture of Rubber and Plastics Products		
Group	(222) Manufacture of Plastics Products		
Job Area	Plastics Product Development	Plastics Blending & Mixing	Plastics Product Production Operation
8	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available
5	Research & Development Engineer* **	No Level	Production Manager**
4	Research & Development Assistant Engineer* **	No Level	Production Engineer**
3	Research & Development Technician	Blending & Mixing Supervisor	Production Supervisor
2	No Level	Blending & Mixing Operator	Line Leader
1	No Level	No Level	Production Operator

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (2 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Primary Process - Injection Moulding Mould Setting (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam)	Primary Process - Injection Moulding Machine Operation (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam)	Primary Process - Blow Moulding Mould Setting (Extrusion, Injection)	Primary Process - Blow Moulding Machine Operation (Extrusion, Injection)	Primary Process - Extrusion (Cast Film)	Primary Process - Extrusion (Blown Film)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Injection Moulding Specialist**	Injection Moulding Specialist**	Blow Moulding Specialist**	Blow Moulding Specialist**	Not Available	Not Available
5	Injection Moulding Manager**	Injection Moulding Manager	Blow Moulding Manager**	Blow Moulding Manager**	Cast Film Manager**	Blown Film Manager**
4	Injection Moulding Engineer**	Injection Moulding Engineer**	Blow Moulding Engineer**	Blow Moulding Engineer**	Cast Film Engineer**	Blown Film Engineer**
3	Injection Moulding Supervisor	Injection Moulding Supervisor	Blow Moulding Supervisor	Blow Moulding Supervisor	Cast Film Supervisor	Blown Film Supervisor
2	Injection Mould Setter	Injection Moulding Machine Technician	Blow Mould Setter	Blow Moulding Machine Technician	Cast Film Technician	Blown Film Technician
1	No Level	No Level	No Level	No Level	No Level	No Level

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (3 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Primary Process - Extrusion (Profile)	Primary Process - Extrusion (Sheet)	Primary Process - Extrusion (Pipe)	Primary Process - Extrusion (Compounding)	Primary Process - Extrusion (Wire & Cable)	Primary Process - Extrusion (Mono Tape/Yarn)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5	Profile Extrusion Manager**	Sheet Extrusion Manager**	Pipe Extrusion Manager* **	Compounding Manager* **	Wire & Cable Extrusion Manager* **	Mono Tape/ Yarn Manager**
4	Profile Extrusion Engineer**	Sheet Extrusion Engineer**	Pipe Extrusion Engineer* **	Compounding Engineer* **	Wire & Cable Extrusion Engineer* **	Mono Tape/ Yarn Engineer**
3	Profile Extrusion Supervisor	Sheet Extrusion Supervisor	Pipe Extrusion Supervisor*	Compounding Supervisor*	Wire & Cable Extrusion Supervisor*	Mono Tape/ Yarn Supervisor
2	Profile Extrusion Technician	Sheet Extrusion Technician	Pipe Extrusion Technician*	Compounding Technician*	Wire & Cable Extrusion Technician*	Mono Tape/ Yarn Technician
1	No Level	No Level	No Level	No Level	No Level	No Level

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (4 of 9)

Section (C) Manufacturing					
Division	(22) Manufacture of Rubber and Plastics Products				
Group	(222) Manufacture of Plastics Products				
Job Area	Primary Process - Extrusion (Lamination & Coating)	Primary Process - Extrusion (Calendaring)	Primary Process - Extrusion (Foam)	Primary Process - Rotational Moulding	Primary Process - Compression Moulding
8	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available
5	Lamination& Coating Manager* **	Calendaring Extrusion Manager**	Foam Extrusion Manager**	Rotational Moulding Manager**	Compression Moulding Manager**
4	Lamination& Coating Engineer* **	Calendaring Extrusion Engineer**	Foam Extrusion Engineer**	Rotational Moulding Engineer**	Compression Moulding Engineer**
3	Lamination& Coating Supervisor	Calendaring Extrusion Supervisor	Foam Extrusion Supervisor	Rotational Moulding Supervisor	Compression Moulding Supervisor
2	Lamination& Coating Technician	Calendaring Extrusion Technician	Foam Extrusion Technician	Rotational Moulding Technician	Compression Moulding Technician
1	No Level	No Level	No Level	No Level	No Level

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (5 of 9)

Section (C) Manufacturing					
Division	(22) Manufacture of Rubber and Plastics Products				
Group	(222) Manufacture of Plastics Products				
Job Area	Primary Process – Thermoforming (Pressure & Vacuum Forming)	Primary Process – Non-Woven	Secondary Process - Printing (Film Printing)	Secondary Process - Printing (Moulding)	Secondary Process - Bag Making
8	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available
5	Thermoforming Manager* **	Non-Woven Manager**	Production Manager**	Production Manager**	Production Manager**
4	Thermoforming Engineer* **	Non-Woven Engineer**	Production Engineer**	Production Engineer**	Production Engineer**
3	Thermoforming Supervisor*	Non-Woven Supervisor	Film Printing Supervisor*	Moulding Printing Supervisor*	Bag Making Supervisor
2	Thermoforming Technician*	Non-Woven Technician	Film Printing Line Leader*	Moulding Printing Line Leader*	Bag Making Line Leader
1	No Level	No Level	Film Printing Operator*	Moulding Printing Operator*	Bag Making Operator

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (6 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Secondary Process - Bristling/ Tufting	Secondary Process - Surface Treatment (Spray & Painting)	Secondary Process - Surface Treatment (Dipping)	Secondary Process - Surface Treatment (Electro Plating)	Secondary Process - Surface Treatment (Chroming)	Secondary Process - Laser Marking & Cutting
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5	Production Manager**	Production Manager**	Production Manager**	Production Manager**	Production Manager**	Production Manager**
4	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**
3	Bristling Supervisor	Spray & Painting Supervisor	Dipping Supervisor	Electro Plating Supervisor	Chroming Supervisor	Laser Marking & Cutting Supervisor
2	Bristling Technician	Spray & Painting Line Leader	Dipping Line Leader	Electro Plating Line Leader	Chroming Line Leader	Laser Marking & Cutting Line Leader
1	Bristling Operator	Spray & Painting Operator	Dipping Operator	Electro Plating Operator	Chroming Operator	Laser Marking & Cutting Operator

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (7 of 9)

Section (C) Manufacturing					
Division	(22) Manufacture of Rubber and Plastics Products				
Group	(222) Manufacture of Plastics Products				
Job Area	Secondary Process - Hot Stamping	Secondary Process - Stamping (Decorative Stamping)	Secondary Process - Stamping (Forming)	Secondary Process - Product Assembly	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding)
8	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available
5	Production Manager**	Production Manager**	Production Manager**	Production Manager**	Production Manager**
4	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**
3	Hot Stamping Supervisor	Decorative Stamping Supervisor	Forming Supervisor	Assembly Supervisor	Plastics Sealing & Welding Supervisor
2	Hot Stamping Line Leader	Decorative Stamping Line Leader	Forming Line Leader	Assembly Line Leader	Plastics Sealing & Welding Line Leader
1	Hot Stamping Operator	Decorative Stamping Operator	Forming Operator	Assembly Operator	Plastics Sealing & Welding Operator

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (8 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Secondary Process - Labelling	Secondary Process - Winding	Secondary Process - Slitting	Secondary Process - Embossing	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding)	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5	Production Manager**	Production Manager**	Production Manager**	Production Manager**	Production Manager**	Production Manager**
4	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**	Production Engineer**
3	Labelling Supervisor	Winding Supervisor	Slitting Supervisor	Embossing Supervisor	Pipe Assembly Supervisor	Pipe Jointing Project Supervisor
2	Labelling Line Leader	Winding Line Leader	Slitting Line Leader	Embossing Line Leader	Pipe Assembly Line Leader	Machine Operator
1	Labelling Operator	Winding Operator	Slitting Operator	Embossing Operator	Pipe Assembly Operator	No Level

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.1: Group 222 Occupational Structure (9 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling)	Customer Technical Support	Compliance Management	Advanced Plastics Engineering - Laminated Plastics Electronics	Advanced Plastics Engineering - Printed Plastics Electronics	Advanced Plastics Engineering - Additive Manufacturing (3D Printing)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Laminated Plastics Electronics Specialist**	Printed Plastics Electronics Specialist**	3D Printing Specialist**
5	Production Manager**	Customer Technical Manager	Quality Assurance Manager	Laminated Plastics Electronics Engineer* **	Printed Plastics Electronics Engineer* **	3D Printing Engineer* **
4	Production Engineer**	Customer Technical Executive	Quality Assurance Assistant Manager	Laminated Plastics Electronics Assistant Engineer*	Printed Plastics Electronics Assistant Engineer* **	3D Printing Assistant Engineer* **
3	Packaging Supervisor	Customer Technical Supervisor	Quality Control Supervisor	Laminated Plastics Electronics Supervisor*	Printed Plastics Electronics Supervisor*	3D Printing Supervisor*
2	Packaging Line Leader	No Level	Quality Control Inspector	Laminated Plastics Electronics Technician*	Printed Plastics Electronics Technician*	3D Printing Technician*
1	Packaging Operator	No Level	No Level	No Level	No Level	No Level

Legend: (i)* Critical Job Title (ii)** Job Related to IR4.0 Competency

Table 4.2: Summary of Job Titles

No	Job Area	Level								Total Identified Job Titles
		1	2	3	4	5	6	7	8	
222 - MANUFACTURE OF PLASTICS PRODUCTS										
1	Plastics Product Development	Nil	Nil	1	1	1	Nil	Nil	Nil	3
2	Plastics Blending & Mixing	Nil	1	1	Nil	Nil	Nil	Nil	Nil	2
3	Plastics Product Production Operation	1	1	1	1	1	Nil	Nil	Nil	5
4	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam)	Nil	1	1	1	1	1	Nil	Nil	5
5	Primary Process - Blow Moulding (Extrusion, Injection)	Nil	1	1	1	1	1	Nil	Nil	5
		Nil	1	1	1	1	1	Nil	Nil	5
6	Primary Process - Extrusion (Cast Film)	Nil	1	1	1	1	Nil	Nil	Nil	4
7	Primary Process - Extrusion (Blown Film)	Nil	1	1	1	1	Nil	Nil	Nil	4
8	Primary Process - Extrusion (Profile)	Nil	1	1	1	1	Nil	Nil	Nil	4
9	Primary Process - Extrusion (Sheet)	Nil	1	1	1	1	Nil	Nil	Nil	4
10	Primary Process - Extrusion (Pipe)	Nil	1	1	1	1	Nil	Nil	Nil	4
11	Primary Process - Extrusion (Compounding)	Nil	1	1	1	1	Nil	Nil	Nil	4
12	Primary Process - Extrusion (Wire & Cable)	Nil	1	1	1	1	Nil	Nil	Nil	4
13	Primary Process - Extrusion (Mono Tape/Yarn)	Nil	1	1	1	1	Nil	Nil	Nil	4
14	Primary Process - Extrusion (Lamination & Coating)	Nil	1	1	1	1	Nil	Nil	Nil	4
15	Primary Process - Extrusion (Calendering)	Nil	1	1	1	1	Nil	Nil	Nil	4
16	Primary Process - Extrusion (Foam)	Nil	1	1	1	1	Nil	Nil	Nil	4
17	Primary Process - Rotational Moulding	Nil	1	1	1	1	Nil	Nil	Nil	4
18	Primary Process - Compression Moulding	Nil	1	1	1	1	Nil	Nil	Nil	4
19	Primary Process – Thermoforming (Pressure & Vacuum Forming)	Nil	1	1	1	1	Nil	Nil	Nil	4
20	Primary Process – Non-Woven	Nil	1	1	1	1	Nil	Nil	Nil	4
21	Secondary Process - Printing (Film Printing)	1	1	1	1	1	Nil	Nil	Nil	5
22	Secondary Process - Printing (Moulding)	1	1	1	1	1	Nil	Nil	Nil	5
23	Secondary Process - Bag Making	Nil	1	1	1	1	Nil	Nil	Nil	4
24	Secondary Process - Bristling/Tufting	1	1	1	1	1	Nil	Nil	Nil	5
25	Secondary Process - Surface Treatment (Spray & Painting)	1	1	1	1	1	Nil	Nil	Nil	5

No	Job Area	Level								Total Identified Job Titles
		1	2	3	4	5	6	7	8	
222 - MANUFACTURE OF PLASTICS PRODUCTS										
26	Secondary Process - Surface Treatment (Dipping)	1	1	1	1	1	Nil	Nil	Nil	5
27	Secondary Process - Surface Treatment (Electro Plating)	1	1	1	1	1	Nil	Nil	Nil	5
28	Secondary Process - Surface Treatment (Chroming)	1	1	1	1	1	Nil	Nil	Nil	5
29	Secondary Process - Laser Marking & Cutting	1	1	1	1	1	Nil	Nil	Nil	5
30	Secondary Process - Hot Stamping	1	1	1	1	1	Nil	Nil	Nil	5
31	Secondary Process - Stamping (Decorative stamping)	1	1	1	1	1	Nil	Nil	Nil	5
32	Secondary Process - Stamping (Forming)	1	1	1	1	1	Nil	Nil	Nil	5
33	Secondary Process - Product Assembly	1	1	1	1	1	Nil	Nil	Nil	5
34	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding)	1	1	1	1	1	Nil	Nil	Nil	5
35	Secondary Process - Labelling	1	1	1	1	1	Nil	Nil	Nil	5
36	Secondary Process - Winding	1	1	1	1	1	Nil	Nil	Nil	5
37	Secondary Process - Slitting	1	1	1	1	1	Nil	Nil	Nil	5
38	Secondary Process - Embossing	1	1	1	1	1	Nil	Nil	Nil	5
39	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding)	1	1	1	1	1	Nil	Nil	Nil	5
40	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion)	Nil	1	1	1	1	Nil	Nil	Nil	4
41	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling)	1	1	1	1	1	Nil	Nil	Nil	5
42	Customer Technical Support	Nil	Nil	1	1	1	Nil	Nil	Nil	3
43	Compliance Management	Nil	1	1	1	1	Nil	Nil	Nil	4
44	Advanced Plastics Engineering - Laminated Plastics Electronics	Nil	1	1	1	1	1	Nil	Nil	5
45	Advanced Plastics Engineering - Printed Plastics Electronics	Nil	1	1	1	1	1	Nil	Nil	5
46	Advanced Plastics Engineering - Additive Manufacturing (3D Printing)	Nil	1	1	1	1	1	Nil	Nil	5
Grand Total of Identified Job Titles										210

* Nil – No identified job titles

4.3 TABLE OF JOB RESPONSIBILITIES VS NOSS LEVEL (AREA DESCRIPTION)

Division: C-22 Manufacture of Rubber and Plastics Products

Group: 222 – Manufacture of Plastics Products

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (1 of 16)

AREA	PLASTICS PRODUCT DEVELOPMENT Responsibilities May Include	PLASTICS BLENDING & MIXING Responsibilities May Include	PLASTICS PRODUCT PRODUCTION OPERATION Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Research & Development Engineer 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour,	<u>NA</u>	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel.

AREA	PLASTICS PRODUCT DEVELOPMENT Responsibilities May Include	PLASTICS BLENDING & MIXING Responsibilities May Include	PLASTICS PRODUCT PRODUCTION OPERATION Responsibilities May Include
	and material costs; reviewing production schedules; estimating future requirements. 6) Prepare product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service. 10) Maintain product and process database by writing computer programs; entering data. 11) Complete design and development projects by training and guiding technicians. 12) Maintain professional and technical knowledge by attending educational workshops; reviewing professional publications; establishing personal networks; participating in professional societies. 13) Contribute to team effort by accomplishing related results as needed.		12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Research & Development Assistant Engineer</u> 1) Determine product requirements by conducting inspections and analytical tests; analysing and synthesizing data; maintaining control charts; determining root causes; preparing bid specifications. 2) Resolve engineering problems by collecting and analysing information; researching, analysing, adapting, and modifying engineering techniques; recommending solutions; preparing drawings, schematics, and diagrams; evaluating components, materials, and	NA	<u>Production Engineer</u> 1) Evaluates manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develops manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors.

AREA	PLASTICS PRODUCT DEVELOPMENT Responsibilities May Include	PLASTICS BLENDING & MIXING Responsibilities May Include	PLASTICS PRODUCT PRODUCTION OPERATION Responsibilities May Include
	suppliers; resolving design integration issues; developing specifications and safety standards; performing installations. 3) Meet cost standards by preparing cost-benefit analyses; tracking and reporting expenses. 4) Comply with codes and regulations by complying with requirements; preparing permit applications, plans and compliance reports. 5) Prepare guidelines by describing operational and testing methods and procedures. 6) Maintain and improve quality results by completing quality assurance tests; following standards; studying, evaluating, and re-designing processes; implementing changes. 7) Ensure operation of analytical equipment by calibrating equipment; completing preventive maintenance requirements; following manufacturer's instructions; troubleshooting malfunctions; calling for repairs; maintaining equipment inventories; evaluating new equipment and techniques. 8) Keep supplies ready by inventorying stock; placing orders; verifying receipt. 9) Prepare engineering reports by collecting, analysing, and summarizing data and trends; entering data and generating reports and presentations; performing calculations. 10) Enhance engineering and organisation reputation by accepting ownership for accomplishing new and different requests; exploring opportunities to add value to job accomplishments.		3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.

AREA	PLASTICS PRODUCT DEVELOPMENT Responsibilities May Include	PLASTICS BLENDING & MIXING Responsibilities May Include	PLASTICS PRODUCT PRODUCTION OPERATION Responsibilities May Include
Level 3	<u>Research & Development Technician</u> 1) Perform various duties related to the operation of laboratory equipment in accordance with Quality System guidelines. 2) Conduct various tests. 3) Prepare samples. 4) Gather, compile and report the results of tests. 5) Perform routine maintenance on laboratory equipment.	<u>Blending & Mixing Supervisor</u> 1) Follow all safety procedures and work as safe as possible at all times. 2) Supervise all day to day activities of the mixing room and personnel. 3) Provide mixing operators with proper tools and training to insure all products are blended in a safe, consistent manner and in accordance with specific blending instructions. 4) Monitor production flow to insure products are made in a timely fashion so as to minimize downtime and product loss. 5) Organise and schedule staffing to ensure all ancillary Blend Room activities are completed as required. 6) Interpret specifications and job orders to workers, and assigns duties. 7) Maintain work flow by monitoring steps of the process; setting processing variables; observing control points and equipment; monitoring personnel and resources; studying methods; implementing cost reductions; developing reporting procedures and systems; facilitating corrections to malfunctions within process control points; initiating and fostering a spirit of cooperation within and between departments. 8) Plan flow of materials through department. 9) Interface with others in the organisation to ensure customer deadlines are met. 10) Inspect and measure parts and products to verify conformance to specifications. 11) Develop, recommend, and implement measures to improve production methods, equipment performance, and quality of product.	<u>Production Supervisor</u> 1) Accomplish manufacturing staff results by communicating job expectations; planning, monitoring, and appraising job results; coaching, counselling, and disciplining employees; initiating, coordinating, and enforcing systems, policies, and procedures. 2) Maintain staff by recruiting, selecting, orienting, and training employees; developing personal growth opportunities. 3) Maintain work flow by monitoring steps of the process. 4) Complete production plan by scheduling and assigning personnel flow on shift production summaries. 5) Maintain quality service by establishing and enforcing organisation standards. 6) Ensure operation of equipment by calling for repairs; evaluating new equipment and techniques. 7) Provide manufacturing information by compiling, initiating, sorting, and analysing production performance records and data; answering questions and responding to requests. 8) Create and revise systems and procedures by analysing operating practices, recordkeeping systems, forms of control, and budgetary and personnel requirements; implementing change. 9) Maintain safe and clean work environment by educating and directing personnel on the use of all control points, equipment, and resources; maintaining compliance with established policies and procedures.

AREA	PLASTICS PRODUCT DEVELOPMENT Responsibilities May Include	PLASTICS BLENDING & MIXING Responsibilities May Include	PLASTICS PRODUCT PRODUCTION OPERATION Responsibilities May Include
		12) Suggest changes in working conditions and use of equipment to increase efficiency of department, or work crew. 13) Analyse and resolve work problems, or assists workers in solving work problems. 14) Maintain time and production records. 15) Assist employees in completion of job duties when needed. 16) Provide safety training and guidance to department employees.	10) Resolve personnel problems with analysing data; investigating issues; identifying solutions; recommending action.
Level 2	NA	<u>Blending & Mixing Operator</u> 1) Tend accessory equipment such as pumps and conveyors to move materials or ingredients through production processes. 2) Weigh or measure materials, ingredients, and products to ensure conformance to requirements. 3) Clean and maintain equipment, using hand tools. 4) Collect samples of materials or products for laboratory testing. 5) Record operational and production data on specified forms. 6) Test samples of materials or products to ensure compliance with specifications, using test equipment. 7) Transfer materials, supplies, and products between work areas, using moving equipment and hand tools. 8) Unload mixtures into containers or onto conveyors for further processing. 9) Add or mix chemicals and ingredients for processing, using hand tools or other devices. 10) Compound and process ingredients or dyes according to formulas.	<u>Line Leader</u> 1) Train and supervise associates. 2) Communicate with the supervisor/manager about any issues that could affect the production floor. 3) Continuous monitoring of lines to ensure proper yield calculations, waste, and spill points. 4) Frequent review of production schedule to adjust for more accurate run time. 5) Insure compliance with all safety rules and regulations to maintain a safe work environment. 6) Maintain uninterrupted flow of product through coordination with forklift drivers, production supervisor and receiving group to maintain efficiency as per standards. 7) Communicate excess/shortage to production supervisor. 8) Constantly monitor product quality of trim/sort operations to improve yield and to address quality defects. 9) Communicate with Quality Control for any defects found and the product placed on hold for evaluation.

AREA	PLASTICS PRODUCT DEVELOPMENT Responsibilities May Include	PLASTICS BLENDING & MIXING Responsibilities May Include	PLASTICS PRODUCT PRODUCTION OPERATION Responsibilities May Include
		11) Dump or pour specified amounts of materials into machinery and equipment. 12) Examine materials, ingredients, or products visually or with hands, in order to ensure conformance to established standards. 13) Read work orders to determine production specifications and information. 14) Start machines to mix or blend ingredients; then allow them to mix for specified times. 15) Stop mixing or blending machines when specified product qualities are obtained, and open valves and start pumping to transfer mixtures.	10) Monitor the condition of equipment in the area of operation and writes work orders to correct any problems detected. 11) Identify safety hazards within the area of operation and notifies Production Manager/Supervisor of any problems. 12) Comply with & enforces all safety rules & regulations to maintain a safe work environment. 13) Report all accidents to the Production Manager/Supervisor and assists in completing the necessary accident reports. 14) Report all equipment malfunctions to the maintenance department & to the production manager/supervisor by completing a maintenance work order.
Level 1	<u>NA</u>	<u>NA</u>	<u>Production Operator</u> 1) Set up the production equipment and supplies before executing the job orders. 2) Operate equipment safely and effectively for production processing. 3) Ensure that equipment is maintained in good and safe working condition. 4) Inspect equipment to identify any replacements, malfunctions and repairs. 5) Perform regular equipment maintenance to ensure production capacity and quality. 6) Evaluate equipment performance and recommend improvements. 7) Follow safety procedures and company policies for equipment operation. 8) Maintain the work area clean, safe and organised.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (2 of 16)

AREA	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Injection Moulding Manager</u> 1) Responsible for the production of injection moulding parts, within the manufacturing plant. 2) Coordinate machine and set-up planning to meet production plan. 3) Lead the daily activities of the production, process engineers and technicians. 4) Drive root-cause analysis and improvement proposals. 5) Build moulding competence in the team. 6) Technically oversee and support validations of new products/ moulds. 7) Coordinate sourcing of moulds and their implementation in production. 8) Responsible for the corrective & preventive maintenance of moulds and machines. 9) Advice in the development of new products based on plastics components. 10) Oversee quality assurance according to company quality management procedures. 11) Support installation and start-up of new Injection moulding lines. 12) Coordinate design and outsourcing of tools and fixtures to support the production process. 13) Set-up and help execute corrective and preventive maintenance procedures and work instructions.	<u>Injection Moulding Manager</u> 1) Responsible for the production of injection moulding parts, within the manufacturing plant. 2) Coordinate machine and set-up planning to meet production plan. 3) Lead the daily activities of the production, process engineers and technicians. 4) Drive root-cause analysis and improvement proposals. 5) Build moulding competence in the team. 6) Technically oversee and support validations of new products/ moulds. 7) Coordinate sourcing of moulds and their implementation in production. 8) Responsible for the corrective & preventive maintenance of moulds and machines. 9) Advice in the development of new products based on plastics components. 10) Oversee quality assurance according to company quality management procedures. 11) Support installation and start-up of new Injection moulding lines. 12) Coordinate design and outsourcing of tools and fixtures to support the production process. 13) Set-up and help execute corrective and preventive maintenance procedures and work instructions.	<u>Blow Moulding Manager</u> 1) Responsible for the production of Blow moulding parts, within the manufacturing plant. 2) Coordinate machine and set-up planning to meet production plan. 3) Lead the daily activities of the production, process engineers and technicians. 4) Drive root-cause analysis and improvement proposals. 5) Build moulding competence in the team. 6) Technically oversee and support validations of new products/ moulds. 7) Coordinate sourcing of moulds and their implementation in production. 8) Responsible for the corrective & preventive maintenance of moulds and machines. 9) Advice in the development of new products based on plastics components. 10) Oversee quality assurance according to company quality management procedures. 11) Support installation and start-up of new Blow moulding lines. 12) Coordinate design and outsourcing of tools and fixtures to support the production process. 13) Set-up and help execute corrective and preventive maintenance procedures and work instructions.

AREA	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include
	14) Create continuous improvement proposal to increase productivity, quality and availability. 15) Define mechanization requirements and concepts. 16) Lead and execute Lean & 5S projects for existing production lines. 17) Coordinate validation of mould, equipment and product changes	14) Create continuous improvement proposal to increase productivity, quality and availability. 15) Define mechanization requirements and concepts. 16) Lead and execute Lean & 5S projects for existing production lines. 17) Coordinate validation of mould, equipment and product changes.	14) Create continuous improvement proposal to increase productivity, quality and availability. 15) Define mechanization requirements and concepts. 16) Lead and execute Lean & 5S projects for existing production lines. 17) Coordinate validation of mould, equipment and product changes.
Level 4	<u>Injection Moulding Engineer</u> 1) Develop and install all new injection moulding equipment and document all implementation processes for all moulded products. 2) Prepare all specifications of all plastics processes 3) Execute all gages to maintain optimal quality and assist to design all control plans. 4) Manage operation and production cost requests and prepare an operation report. 5) Administer all projects and recommend improvement to facilitate all first time quality. 6) Analyse and ensure compliance with all customers' requirements are adhered. 7) Monitor all manufacturing processes and maintain the optimization of all equipment. 8) Identify and review all improvement requirements to maintain product quality 9) Perform regular investigations for all projects. 10) Provide support to all operational objectives. 11) Provide support to increase productivity of all plastics associate processes in the company. 12) Provide support to purchase and R&D department. 13) Perform root cause analysis for all injection moulding.	<u>Injection Moulding Engineer</u> 1) Develop and install all new injection moulding equipment and document all implementation processes for all moulded products. 2) Prepare all specifications of all plastics processes 3) Execute all gages to maintain optimal quality and assist to design all control plans. 4) Manage operation and production cost requests and prepare an operation report. 5) Administer all projects and recommend improvement to facilitate all first-time quality. 6) Analyse and ensure compliance to all customers' requirements are adhered. 7) Monitor all manufacturing processes and maintain the optimization of all equipment. 8) Identify and review all improvement requirements to maintain product quality 9) Perform regular investigations for all projects. 10) Provide support to all operational objectives. 11) Provide support to increase productivity of all plastics associate processes in the company. 12) Provide support to purchase and R&D department. 13) Perform root cause analysis for all injection moulding.	<u>Blow Moulding Engineer</u> 1) Develop and install all new Blow moulding equipment and document all implementation processes for all moulded products. 2) Prepare all specifications of all plastics processes 3) Execute all gages to maintain optimal quality and assist to design all control plans. 4) Manage operation and production cost requests and prepare an operation report. 5) Administer all projects and recommend improvement to facilitate all first-time quality. 6) Analyse and ensure compliance to all customers' requirements are adhered. 7) Monitor all manufacturing processes and maintain the optimization of all equipment. 8) Identify and review all improvement requirements to maintain product quality 9) Perform regular investigations for all projects. 10) Provide support to all operational objectives. 11) Provide support to increase productivity of all plastics associate processes in the company. 12) Provide support to purchase and R&D department. 13) Perform root cause analysis for all blow moulding.

AREA	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include
Level 3	<u>Injection Moulding Supervisor</u> 1) Troubleshoot and adjust injection moulding parameters to maintain quality and maximum product output. 2) Lead a small team of people in the execution of daily production tasks, work scheduling, training, maintenance and continuous improvement. 3) Perform problem-solving to develop corrective actions for customer issues or to initiate continuous improvement. 4) Coordinate tooling and equipment availability, repair and maintenance. 5) Ensure cleanliness and maintains a safe work environment within the injection moulding department. 6) Respond to problems by performing corrective technical or mechanical solutions. 7) Maintain positive employee relations and adhere to Company policies, safety standards, and good housekeeping practices. 8) Coordinate with outside vendors regarding maintenance and repair for tooling and equipment. 9) Implement and manage all maintenance functions, including but not limited to preventive, corrective and emergency maintenance on all injection moulding equipment.	<u>Injection Moulding Supervisor</u> 1) Troubleshoot and adjust injection moulding parameters to maintain quality and maximum product output. 2) Lead a small team of people in the execution of daily production tasks, work scheduling, training, maintenance and continuous improvement. 3) Perform problem-solving to develop corrective actions for customer issues or to initiate continuous improvement. 4) Coordinate tooling and equipment availability, repair and maintenance. 5) Ensure cleanliness and maintains a safe work environment within the injection moulding department. 6) Respond to problems by performing corrective technical or mechanical solutions. 7) Maintain positive employee relations and adhere to Company policies, safety standards, and good housekeeping practices. 8) Coordinate with outside vendors regarding maintenance and repair for tooling and equipment. 9) Implement and manage all maintenance functions, including but not limited to preventive, corrective and emergency maintenance on all injection moulding equipment.	<u>Blow Moulding Supervisor</u> 1) Troubleshoot and adjust Blow moulding parameters to maintain quality and maximum product output. 2) Lead a small team of people in the execution of daily production tasks, work scheduling, training, maintenance and continuous improvement. 3) Perform problem-solving to develop corrective actions for customer issues or to initiate continuous improvement. 4) Coordinate tooling and equipment availability, repair and maintenance. 5) Ensure cleanliness and maintains a safe work environment within Blow moulding department. 6) Respond to problems by performing corrective technical or mechanical solutions. 7) Maintain positive employee relations and adhere to Company policies, safety standards, and good housekeeping practices. 8) Coordinate with outside vendors regarding maintenance and repair for tooling and equipment. 9) Implement and manage all maintenance functions, including but not limited to preventive, corrective and emergency maintenance on all Blow moulding equipment.
Level 2	<u>Injection Mould Setter</u> 1) Repair and maintain machines and auxiliary equipment, using hand tools and power tools. 2) Trim excess material from part, using knife, and grind scrap plastics into powder for reuse.	<u>Injection Moulding Machine Technician</u> 1) Install and set up injection moulds for production.	<u>Blow Mould Setter</u> 1) Repair and maintain machines and auxiliary equipment, using hand tools and power tools. 2) Trim excess material from part, using knife, and grind scrap plastics into powder for reuse.

AREA	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Injection Moulding (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam) Responsibilities May Include	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include
	3) Remove finished or cured product from dies or mould, using hand tools and air hose. 4) Measure and visually inspects products for surface and dimension defects, using precision measuring instruments, to ensure conformance to specifications. 5) Position, align, and secure assembled mould, mould components, and machine accessories onto a machine press bed, and attaches connecting lines. 6) Install mould onto machine according to work order specifications. 7) Observe and adjust machine set up and operations to eliminate production of defective parts and products. 8) Read specifications to determine setup and prescribed temperature and time settings to mould, form, or cast plastics materials.	2) Start-up injection moulding machines in a fast paced custom injection moulding facility in a safe and efficient manner. 3) Troubleshoot and adjust injection moulding machine parameters to maintain quality and maximum product output. 4) Work alongside a small team of associates in execution of daily production tasks, work scheduling, training, maintenance, continuous improvement and support the implementation of ISO quality system. 5) Perform problem-solving of moulding quality defects and correct them. 6) Ensure cleanliness and maintain a safe work environment within the moulding department. 7) Respond to problems by performing corrective technical or mechanical solutions. 8) Maintain positive employee relations and adhere to company policies, safety standards, and good housekeeping practices. 9) Assist in various maintenance functions, including but not limited to, preventive, corrective and emergency maintenance on all injection moulding equipment.	3) Remove finished or cured product from dies or mould, using hand tools and air hose. 4) Measure and visually inspect products for surface and dimension defects, using precision measuring instruments, to ensure conformance to specifications. 5) Position, align, and secure assembled mould, mould components, and machine accessories onto a machine press bed, and attaches connecting lines. 6) Install mould onto machine according to work order specifications. 7) Observe and adjust machine set up and operations to eliminate production of defective parts and products. 8) Read specifications to determine setup and prescribed temperature and time settings to mould, form, or cast plastics materials.
Level 1	<u>NA</u>	<u>NA</u>	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (3 of 16)

AREA	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include	Primary Process - Extrusion (Cast Film) Responsibilities May Include	Primary Process - Extrusion (Blown Film) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Blow Moulding Manager</u> 1) Responsible for the production of blow moulding parts, within the manufacturing plant. 2) Coordinate machine and set-up planning to meet production plan. 3) Lead the daily activities of the production, process engineers and technicians. 4) Drive root-cause analysis and improvement proposals. 5) Build moulding competence in the team. 6) Technically oversee and support validations of new products/ moulds. 7) Coordinate sourcing of moulds and their implementation in production. 8) Responsible for the corrective & preventive maintenance of moulds and machines. 9) Advice in the development of new products based on plastics components. 10) Oversee quality assurance according to company quality management procedures. 11) Support installation and start-up of new Blow moulding lines. 12) Coordinate design and outsourcing of tools and fixtures to support the production process. 13) Set-up and help execute corrective and preventive maintenance procedures and work instructions. 14) Create continuous improvement proposal to increase productivity, quality and availability.	<u>Cast Moulding Manager</u> 1) Responsible for the production of cast moulding parts, within the manufacturing plant. 2) Coordinate machine and set-up planning to meet production plan. 3) Lead the daily activities of the production, process engineers and technicians. 4) Drive root-cause analysis and improvement proposals. 5) Build moulding competence in the team. 6) Technically oversee and support validations of new products/ moulds. 7) Coordinate sourcing of moulds and their implementation in production. 8) Responsible for the corrective & preventive maintenance of moulds and machines. 9) Advice in the development of new products based on plastics components. 10) Oversee quality assurance according to company quality management procedures. 11) Support installation and start-up of new Cast moulding lines. 12) Coordinate design and outsourcing of tools and fixtures to support the production process. 13) Set-up and help execute corrective and preventive maintenance procedures and work instructions. 14) Create continuous improvement proposal to increase productivity, quality and availability.	<u>Blown Film Manager</u> 1) Manage shift production employees and production equipment in the production department. 2) Oversee the training, upgrading, evaluation and performance reviews of the staff 3) Perform administrative duties as required, including maintaining employee attendance records, initiating personnel action forms, writing, counselling forms, vacation requests and any other reports as needed. 4) Help to maintain the shift safety program to minimize accidents and injuries and to ensure a safe working environment. 5) Constantly follow quality and production and makes the necessary decisions to maintain maximum rates with high quality in an efficient time and manner. 6) Coordinate with Maintenance for scheduled shutdowns and repairs in order to achieve the necessary maintenance work with the minimum operational losses. 7) Initiate corrective action to resolve problems. Assures that established policy, rules, regulations and procedures are followed. 8) Validate production scheduling to ensure efficient operation. 9) Reporting any discrepancies in orders and set-ups to the Plant Manager.

AREA	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include	Primary Process - Extrusion (Cast Film) Responsibilities May Include	Primary Process - Extrusion (Blown Film) Responsibilities May Include
	15) Define mechanization requirements and concepts. 16) Lead and execute Lean & 5S projects for existing production lines. 17) Coordinate validation of mould, equipment and product changes.	15) Define mechanization requirements and concepts. 16) Lead and execute Lean & 5S projects for existing production lines. 17) Coordinate validation of mould, equipment and product changes.	
Level 4	<u>Blow Moulding Engineer</u> 1) Develop and install all new Blow moulding equipment and document all implementation processes for all moulded products. 2) Prepare all specifications of all plastics processes 3) Execute all gages to maintain optimal quality and assist to design all control plans. 4) Manage operation and production cost requests and prepare an operation report. 5) Administer all projects and recommend improvement to facilitate all first-time quality. 6) Analyse and ensure compliance to all customers' requirements are adhered. 7) Monitor all manufacturing processes and maintain the optimization of all equipment. 8) Identify and review all improvement requirements to maintain product quality 9) Perform regular investigations for all projects. 10) Provide support to all operational objectives. 11) Provide support to increase productivity of all plastics associate processes in the company. 12) Provide support to purchase and R&D department. 13) Perform root cause analysis for all blow moulding.	<u>Cast Moulding Engineer</u> 1) Develop and install all new cast moulding equipment and document all implementation processes for all moulded products. 2) Prepare all specifications of all plastics processes 3) Execute all gages to maintain optimal quality and assist to design all control plans. 4) Manage operation and production cost requests and prepare an operation report. 5) Administer all projects and recommend improvement to facilitate all first-time quality. 6) Analyse and ensure compliance to all customers' requirements are adhered. 7) Monitor all manufacturing processes and maintain the optimization of all equipment. 8) Identify and review all improvement requirements to maintain product quality 9) Perform regular investigations for all projects. 10) Provide support to all operational objectives. 11) Provide support to increase productivity of all plastics associate processes in the company. 12) Provide support to purchase and R&D department. 13) Perform root cause analysis for all cast moulding.	<u>Blown Film Engineer</u> 1) Execute and implement activities of the Extrusion department 2) Plan and coordinate training for extrusion operators in proper extrusion techniques 3) Ensure extruders are running the best quality film and output on a daily basis in all departments 4) Improve company's film quality and strength and minimize extrusion downtime 5) Work with Quality Control to properly sample and test film properties on a timely basis 6) Conduct Research and Development projects as directed by Senior Process Engineer 7) Ensure that documents and checklists are followed in extrusion from operator settings to adjustment methods and troubleshooting 8) Assist in developing procedures and checklists 9) Assist Engineering department as needed to design, develop and procure new plant equipment.

AREA	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include	Primary Process - Extrusion (Cast Film) Responsibilities May Include	Primary Process - Extrusion (Blown Film) Responsibilities May Include
Level 3	<u>Blow Moulding Supervisor</u> 1) Troubleshoot and adjust blow moulding parameters to maintain quality and maximum product output. 2) Lead a small team of people in the execution of daily production tasks, work scheduling, training, maintenance and continuous improvement. 3) Perform problem-solving to develop corrective actions for customer issues or to initiate continuous improvement. 4) Coordinate tooling and equipment availability, repair and maintenance. 5) Ensure cleanliness and maintains a safe work environment within Blow moulding department. 6) Respond to problems by performing corrective technical or mechanical solutions. 7) Maintain positive employee relations and adhere to company policies, safety standards, and good housekeeping practices. 8) Coordinate with outside vendors regarding maintenance and repair for tooling and equipment. 9) Implement and manage all maintenance functions, including but not limited to preventive, corrective and emergency maintenance on all blow moulding equipment.	<u>Cast Moulding Supervisor</u> 1) Troubleshoot and adjust cast moulding parameters to maintain quality and maximum product output. 2) Lead a small team of people in the execution of daily production tasks, work scheduling, training, maintenance and continuous improvement. 3) Perform problem-solving to develop corrective actions for customer issues or to initiate continuous improvement. 4) Coordinate tooling and equipment availability, repair and maintenance. 5) Ensure cleanliness and maintains a safe work environment within the Cast moulding department. 6) Respond to problems by performing corrective technical or mechanical solutions. 7) Maintain positive employee relations and adhere to company policies, safety standards, and good housekeeping practices. 8) Coordinate with outside vendors regarding maintenance and repair for tooling and equipment. 9) Implement and manage all maintenance functions, including but not limited to preventive, corrective and emergency maintenance on all cast moulding equipment.	<u>Blown Film Supervisor</u> 1) Manage operations of extruders to meet customers' specifications. 2) Select correct tooling per setup instructions. 3) Execute set ups and clean outs operation. 4) Responsible for following tool sheets and producing a quality product. 5) Troubleshoot advanced machine and process functions. 6) Start-up machines and maintain specifications by themselves, while producing minimal scrap. 7) Minimize waste and scrap by diligently working on improvements and efficient problem solving. 8) Ability to use callipers, micrometres and other gaging tools as required. 9) Clean and care of all tooling and equipment both before and after set ups. 10) Control the extrusion process in a safe manner while maintaining customer specifications. 11) Ensure that materials are boxed and containers labelled correctly. 12) Understanding of the extrusion process as explained, or through continuing education class. 13) Follow correct procedures for cleaning of machine and labelling of material. 14) Responsible for accurate inventory/identification of inventory on storage shelves and racks.
Level 2	<u>Blow Moulding Machine Technician</u> 1) Install and set up injection moulds for production. 2) Start-up injection moulding machines in a fast-paced custom injection moulding facility in a safe and efficient manner.	<u>Cast Moulding Machine Technician</u> 1) Install and set up injection moulds for production. 2) Start-up injection moulding machines in a fast-paced custom injection moulding facility in a safe and efficient manner.	<u>Blown Film Technician</u> 1) Adjust machines as necessary or willing/able to learn. 2) Assist with changeovers as necessary. 3) Communicate quality issues to all necessary personnel. 4) Complete all necessary production paperwork.

AREA	Primary Process - Blow Moulding (Extrusion, Injection) Responsibilities May Include	Primary Process - Extrusion (Cast Film) Responsibilities May Include	Primary Process - Extrusion (Blown Film) Responsibilities May Include
	3) Troubleshoot and adjust injection moulding machine parameters to maintain quality and maximum product output. 4) Work alongside a small team of associates in execution of daily production tasks, work scheduling, training, maintenance, continuous improvement and support the implementation of quality management system. 5) Perform problem-solving of moulding quality defects and correct them. 6) Ensure cleanliness and maintain a safe work environment within the moulding department. 7) Respond to problems by performing corrective technical or mechanical solutions. 8) Maintain positive employee relations and adhere to company policies, safety standards, and good housekeeping practices. 9) Assist in various maintenance functions, including but not limited to, preventive, corrective and emergency maintenance on all injection moulding equipment.	3) Troubleshoot and adjust injection moulding machine parameters to maintain quality and maximum product output. 4) Work alongside a small team of associates in execution of daily production tasks, work scheduling, training, maintenance, continuous improvement and support the implementation of quality management system. 5) Perform problem-solving of moulding quality defects and correct them. 6) Ensure cleanliness and maintain a safe work environment within the moulding department. 7) Respond to problems by performing corrective technical or mechanical solutions. 8) Maintain positive employee relations and adhere to company policies, safety standards, and good housekeeping practices. 9) Assist in various maintenance functions, including but not limited to, preventive, corrective and emergency maintenance on all injection moulding equipment.	5) Ability to read all measuring instruments (micrometre and tape measure) or willing/able to learn. 6) Complete all quality checks as necessary. 7) Work safely and follow all company safety policies and procedures. 8) Follow all quality and food safety policies and procedures to ensure products meet all applicable customers, regulatory and industry standards. 9) Participate in continuous improvement activities. 10) Participate in corrective action team member 11) Report any potential food safety, quality of food defence concerns to the plant supervisor or quality personnel.
Level 1	<u>NA</u>	<u>NA</u>	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (4 of 16)

AREA	Primary Process – Extrusion (Profile) Responsibilities May Include	Primary Process – Extrusion (Sheet) Responsibilities May Include	Primary Process – Extrusion (Pipe) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Profile Extrusion Manager 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	Sheet Extrusion Manager 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	Pipe Extrusion Manager 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.
Level 4	Profile Extrusion Engineer 1) Involve in the improvement and support of manufacturing and process development.	Sheet Extrusion Engineer 1) Involve in the improvement and support of manufacturing and process development.	Pipe Extrusion Engineer 1) Involve in the improvement and support of manufacturing and process development.

AREA	Primary Process – Extrusion (Profile) Responsibilities May Include	Primary Process – Extrusion (Sheet) Responsibilities May Include	Primary Process – Extrusion (Pipe) Responsibilities May Include
	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.
Level 3	<u>Profile Extrusion Supervisor</u> 1) Direct the profile extrusion and material handling activities. 2) Maintain standards of quality for profile extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Sheet Extrusion Supervisor</u> 1) Direct the sheet extrusion and material handling activities. 2) Maintain standards of quality for sheet extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Pipe Extrusion Supervisor</u> 1) Direct the pipe extrusion and material handling activities. 2) Maintain standards of quality for pipe extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.

AREA	Primary Process – Extrusion (Profile) Responsibilities May Include	Primary Process – Extrusion (Sheet) Responsibilities May Include	Primary Process – Extrusion (Pipe) Responsibilities May Include
	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to profile extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to sheet extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to pipe extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.
Level 2	<u>Profile Extrusion Technician</u> 1) Prepare production activity for profile extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for profile extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot profile extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for profile extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Sheet Extrusion Technician</u> 1) Prepare production activity for sheet extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for sheet extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot sheet extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for profile extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Pipe Extrusion Technician</u> 1) Prepare production activity for pipe extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for pipe extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot pipe extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for profile extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.
Level 1	NA	NA	NA

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (5 of 16)

AREA	Primary Process - Extrusion (Compounding) Responsibilities May Include	Primary Process – Extrusion (Wire & Cable) Responsibilities May Include	Primary Process – Extrusion (Mono Tape/Yarn) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Compounding Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	<u>Wire & Cable Extrusion Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	<u>Mono Tape/ Yarn Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.
Level 4	<u>Compounding Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.	<u>Wire & Cable Extrusion Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.	<u>Mono Tape/ Yarn Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.

AREA	Primary Process - Extrusion (Compounding) Responsibilities May Include	Primary Process – Extrusion (Wire & Cable) Responsibilities May Include	Primary Process – Extrusion (Mono Tape/Yarn) Responsibilities May Include
	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.
Level 3	<u>Compounding Extrusion Supervisor</u> 1) Direct the compounding extrusion and material handling activities. 2) Maintain standards of quality for compounding extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Wire & Cable Extrusion Supervisor</u> 1) Direct the wire & cable extrusion and material handling activities. 2) Maintain standards of quality for wire & cable extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Mono Tape/Yarn Extrusion Supervisor</u> 1) Direct the mono tape/yarn extrusion and material handling activities. 2) Maintain standards of quality for mono tape/yarn extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.

AREA	Primary Process - Extrusion (Compounding) Responsibilities May Include	Primary Process – Extrusion (Wire & Cable) Responsibilities May Include	Primary Process – Extrusion (Mono Tape/Yarn) Responsibilities May Include
	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to compounding extrusion operations. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to wire & cable extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to mono tape/yarn extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.
Level 2	<u>Compounding Extrusion Technician</u> 1) Prepare production activity for compounding extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for compounding extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot compounding extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for compounding extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Wire & Cable Extrusion Technician</u> 1) Prepare production activity for wire & cable extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for wire & cable extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot wire & cable extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for wire & cable extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Mono Tape/Yarn Extrusion Technician</u> 1) Prepare production activity for mono tape/yarn extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for mono tape/yarn extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot mono tape/yarn extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for mono tape/yarn extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.
Level 1	<u>NA</u>	<u>NA</u>	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (6 of 16)

AREA	Primary Process - Extrusion (Lamination & Coating) Responsibilities May Include	Primary Process - Extrusion (Calendaring) Responsibilities May Include	Primary Process - Extrusion (Foam) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Lamination& Coating Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	<u>Calendaring Extrusion Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	<u>Foam Extrusion Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensures that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.
Level 4	<u>Lamination& Coating Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.	<u>Calendaring Extrusion Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.	<u>Foam Extrusion Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.

AREA	Primary Process - Extrusion (Lamination & Coating) Responsibilities May Include	Primary Process - Extrusion (Calendaring) Responsibilities May Include	Primary Process - Extrusion (Foam) Responsibilities May Include
	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.
Level 3	<u>Lamination & Coating Extrusion Supervisor</u> 1) Direct the lamination & coating extrusion and material handling activities. 2) Maintain standards of quality for lamination & coating extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommends employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Calendaring Extrusion Supervisor</u> 1) Direct the calendaring extrusion and material handling activities. 2) Maintain standards of quality for calendaring extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Foam Extrusion Supervisor</u> 1) Direct the foam extrusion and material handling activities. 2) Maintain standards of quality for foam extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.

AREA	Primary Process - Extrusion (Lamination & Coating) Responsibilities May Include	Primary Process - Extrusion (Calendaring) Responsibilities May Include	Primary Process - Extrusion (Foam) Responsibilities May Include
	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to lamination & the coating extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to the calendaring extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to foam extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.
Level 2	<u>Lamination & Coating Extrusion Technician</u> 1) Prepare production activity for lamination & coating extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for lamination & coating extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot lamination & coating extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for lamination & coating extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Calendaring Extrusion Technician</u> 1) Prepare production activity for calendaring extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for calendaring extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot calendaring extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) An Ability to apply all aspects of scientific moulding for calendaring extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Foam Extrusion Technician</u> 1) Prepare production activity for foam extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for foam extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot foam extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for foam extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.
Level 1	<u>NA</u>	<u>NA</u>	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (7 of 16)

AREA	Primary Process - Rotational Moulding Responsibilities May Include	Primary Process - Compression Moulding Responsibilities May Include	Primary Process – Thermoforming (Pressure & Vacuum Forming) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Rotational Moulding Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensures that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	<u>Compression Moulding Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	<u>Thermoforming Manager</u> 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensures that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.
Level 4	<u>Rotational Moulding Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.	<u>Compression Moulding Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.	<u>Thermoforming Engineer</u> 1) Involve in the improvement and support of manufacturing and process development.

AREA	Primary Process - Rotational Moulding Responsibilities May Include	Primary Process - Compression Moulding Responsibilities May Include	Primary Process – Thermoforming (Pressure & Vacuum Forming) Responsibilities May Include
	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.
Level 3	<u>Rotational Moulding Extrusion Supervisor</u> 1) Direct the rotational moulding extrusion and material handling activities. 2) Maintain standards of quality for rotational moulding extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Compression Moulding Extrusion Supervisor</u> 1) Direct the compression moulding extrusion and material handling activities. 2) Maintain standards of quality for compression moulding extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.	<u>Thermoforming Extrusion Supervisor</u> 1) Direct the thermoforming extrusion and material handling activities. 2) Maintain standards of quality for thermoforming extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.

AREA	Primary Process - Rotational Moulding Responsibilities May Include	Primary Process - Compression Moulding Responsibilities May Include	Primary Process – Thermoforming (Pressure & Vacuum Forming) Responsibilities May Include
	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to the rotational moulding extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to the compression moulding extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to thermoforming extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.
Level 2	<u>Rotational Moulding Extrusion Technician</u> 1) Prepare production activity for rotational moulding extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for rotational moulding extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot rotational moulding extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for rotational moulding extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Compression Moulding Extrusion Technician</u> 1) Prepare production activity for compression moulding extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for compression moulding extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot compression moulding extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for compression moulding extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Thermoforming Extrusion Technician</u> 1) Prepare production activity for thermoforming extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for thermoforming extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot thermoforming extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Ability to apply all aspects of scientific moulding for thermoforming extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.
Level 1	<u>NA</u>	<u>NA</u>	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (8 of 16)

AREA	Primary Process – Non-Woven Responsibilities May Include	Secondary Process - Printing (Film Printing) Responsibilities May Include	Secondary Process - Printing (Moulding) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Non-woven Manager 1) Manage all department personnel and operations to ensure product is completed in an efficient and timely manner. 2) Upgrade, evaluate and review employee's competencies. 3) Responsible for cost controls and optimizing processes to ensure all activities are value added while ensuring production goals are met. 4) Establish department procedures to maintain structured discipline as well as reach quality and performance objectives. 5) Coordinate the training and cross training of employees to facilitate skills growth. 6) Ensure that established policy, rules and regulations and procedures are followed. 7) Drive continuous improvement. 8) Identify root cause and implement corrective actions for non-conforming materials and out of control processes. 9) Responsible for efficient asset utilization and resource loading. 10) Ensure occupational safety, good manufacturing practices, and company quality management system processes are maintained.	Production Manager 1) Ensure implementation and adherence to health and safety procedures 2) Ensure all products are produced to high quality standards 3) Ensure timely delivery of customer orders 4) Implement and control the production schedule with planner/buyer 5) Review and adjust the schedule in conjunction with customer demands 6) Manage human and material resources to meet production goals 7) Responsible for all preventative maintenance and repair of equipment 8) Provide input to management on capital expenditure requirements 9) Determine equipment use, modification and procurement 10) Maintain and/or implement (ISO) standard operating production procedures 11) Conduct monthly safety meeting, with safety team and production personnel 12) Monitor and set product quality standards 13) Implement and enforce quality control and tracking programs to meet quality objectives 14) Analyse production and quality control to detect and correct problems 15) Determine and implement improvements to production processes 16) Maintain daily and production efficiency reports	Production Manager 1) Ensure implementation and adherence to health and safety procedures 2) Ensure all products are produced to high quality standards 3) Ensure timely delivery of customer orders 4) Implement and control the production schedule with planner/buyer 5) Review and adjust the schedule in conjunction with customer demands 6) Manage human and material resources to meet production goals 7) Responsible for all preventative maintenance and repair of equipment 8) Provide input to management on capital expenditure requirements 9) Determine equipment use, modification and procurement 10) Maintain and/or implement (ISO) standard operating production procedures 11) Conduct monthly safety meeting, with safety team and production personnel 12) Monitor and set product quality standards 13) Implement and enforce quality control and tracking programs to meet quality objectives 14) Analyse production and quality control to detect and correct problems 15) Determine and implement improvements to production processes 16) Maintain daily and production efficiency reports

AREA	Primary Process – Non-Woven Responsibilities May Include	Secondary Process - Printing (Film Printing) Responsibilities May Include	Secondary Process - Printing (Moulding) Responsibilities May Include
		17) Monitor and review the performance of staff and organise necessary interventions for improvement 18) Implement cost control programs (scrap reduction, higher output etc.) 19) Ensure efficient collaboration and co-ordination between all departments.	17) Monitor and review the performance of staff and organise necessary interventions for improvement 18) Implement cost control programs (scrap reduction, higher output etc.) 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Non-woven Engineer</u> 1) Involve in the improvement and support of manufacturing and process development. 2) Design and develop new equipment and processes and troubleshoot it. 3) Prepare documentation for all the details of the process development and modify it whenever any new component or a system has been designed. 4) Create documentation for the prototypes which have been built and designed. 5) Prepare requisitions for the requirements of tools and other specific components. 6) Perform experiments, ensure its validity and operation by installing and running the extrusion equipment and process.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. . 7) Provide manufacturing engineering information by answering questions and requests.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests.

AREA	Primary Process – Non-Woven Responsibilities May Include	Secondary Process - Printing (Film Printing) Responsibilities May Include	Secondary Process - Printing (Moulding) Responsibilities May Include
		8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Non-woven Extrusion Supervisor</u> 1) Direct the non-woven extrusion and material handling activities. 2) Maintain standards of quality for non-woven extrusion activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs. 9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to non-woven extrusion operation. 11) Coordinate the implementation of any approved process or procedure changes.	<u>Film Printing Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for film printing department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to film printing production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes.	<u>Moulding Printing Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for the moulding printing department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure. 5) Utilize available personnel to meet the needs of the production schedule. 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 1) Communicate with other supervisors and departments. 2) Prepare daily attendance reports and production reports. 3) Prepare incident report and investigate all accidents related to the moulding printing production operation. 4) Document performance, discipline, counselling, achievements, etc. for the employee files. 5) Monitor to ensure that the machines are running according to determined processes.

AREA	Primary Process – Non-Woven Responsibilities May Include	Secondary Process - Printing (Film Printing) Responsibilities May Include	Secondary Process - Printing (Moulding) Responsibilities May Include
	12) Keep current on technical developments and changes in order to instruct and train employees.	13) Carry out technical troubleshooting and problem solving in film printing operation. 14) Monitor and control material usage based on production requirements.	6) Carry out technical troubleshooting and problem solving in moulding printing operation. 7) Monitor and control material usage based on production requirements.
Level 2	<u>Non-woven Extrusion Technician</u> 1) Prepare production activity for non-woven extrusion including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure moulding machines, auxiliary equipment and connected automated systems for non-woven extrusion are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on mould design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot non-woven extrusion processing problems, perform preventive maintenance tasks, and document process changes. 5) Are able to apply all aspects of scientific moulding for non-woven extrusion. 6) Understand the importance of reducing and re-using material scrap to protect environment and save costs.	<u>Film Printing Line Leader</u> 1) Audit film printing production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to film printing production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Moulding Printing Line Leader</u> 1) Audit moulding printing production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to moulding printing production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.
Level 1	<u>NA</u>	<u>Film Printing Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all film printing operations. 3) Perform on-line and in-process visual inspection of film printing to ensure it meets	<u>Moulding Printing Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all moulding printing operations. 3) Perform on-line and in-process visual inspection of moulding printing to ensure it

AREA	Primary Process – Non-Woven Responsibilities May Include	Secondary Process - Printing (Film Printing) Responsibilities May Include	Secondary Process - Printing (Moulding) Responsibilities May Include
		specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject film printing product that is off specifications. 8) Adhere to safety standards. 9) Perform other related film printing tasks, as required.	meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject moulding printing product that is off specifications. 8) Adhere to safety standards. 9) Perform other related moulding printing tasks, as required.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (9 of 16)

AREA	Secondary Process - Bag Making Responsibilities May Include	Secondary Process - Bristling/Tufting Responsibilities May Include	Secondary Process - Surface Treatment (Spray & Painting) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Production Manager</u> 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes.	<u>Production Manager</u> 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes.	<u>Production Manager</u> 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes.

AREA	Secondary Process - Bag Making Responsibilities May Include	Secondary Process - Bristling/Tufting Responsibilities May Include	Secondary Process - Surface Treatment (Spray & Painting) Responsibilities May Include
	16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends.

AREA	Secondary Process - Bag Making Responsibilities May Include	Secondary Process - Bristling/Tufting Responsibilities May Include	Secondary Process - Surface Treatment (Spray & Painting) Responsibilities May Include
	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintains product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Bag Making Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for bag making department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to bag making production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.	<u>Bristling/Tufting Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for bristling/tufting department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident report and investigate all accidents related to bristling/tufting production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.	<u>Spray & Painting Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for Spray & Painting department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident report and investigate all accidents related to Spray & Painting production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.

AREA	Secondary Process - Bag Making Responsibilities May Include	Secondary Process - Bristling/Tufting Responsibilities May Include	Secondary Process - Surface Treatment (Spray & Painting) Responsibilities May Include
	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in bag making operation. 14) Monitor and control material usage based on production requirements.	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in bristling/tufting operation. 14) Monitor and control material usage based on production requirements.	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in Spray & Painting operation. 14) Monitor and control material usage based on production requirements.
Level 2	<u>Bag Making Line Leader</u> 1) Audit bag making production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to bag making production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Bristling/Tufting Line Leader</u> 1) Audit bristling/tufting production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to bristling/tufting production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Spray & Painting Line Leader</u> 1) Audit Spray & Painting production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to Spray & Painting production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.
Level 1	<u>Bag Making Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all bag making operations. 3) Perform on-line and in-process visual inspection of the bag making to ensure it meets	<u>Bristling/Tufting Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all bristling/tufting operations. 3) Perform on-line and in-process visual inspection of bristling/tufting to ensure it meets	<u>Spray & Painting Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all Spray & Painting operations. 3) Perform on-line and in-process visual inspection of Spray & Painting to ensure it

AREA	Secondary Process - Bag Making Responsibilities May Include	Secondary Process - Bristling/Tufting Responsibilities May Include	Secondary Process - Surface Treatment (Spray & Painting) Responsibilities May Include
	specifications per work order and procedure instructions. 4) Assists Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject bag making product that is off specifications. 8) Adhere to safety standards. 9) Perform other related bag making tasks, as required.	specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject bristling/tufting product that is off specifications. 8) Adhere to safety standards. 9) Perform other related bristling/tufting tasks, as required.	meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject Spray & Painting product that is off specifications. 8) Adhere to safety standards. 9) Perform other related Spray & Painting tasks, as required.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (10 of 16)

AREA	Secondary Process - Surface Treatment (Dipping) Responsibilities May Include	Secondary Process - Surface Treatment (Electro Plating) Responsibilities May Include	Secondary Process - Surface Treatment (Chroming) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders 4) Implement and control the production schedule with planner/ buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/ or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders 4) Implement and control the production schedule with planner/ buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/ or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders 4) Implement and control the production schedule with planner/ buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/ or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports

AREA	Secondary Process - Surface Treatment (Dipping) Responsibilities May Include	Secondary Process - Surface Treatment (Electro Plating) Responsibilities May Include	Secondary Process - Surface Treatment (Chroming) Responsibilities May Include
	17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. .	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. .	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. .

AREA	Secondary Process - Surface Treatment (Dipping) Responsibilities May Include	Secondary Process - Surface Treatment (Electro Plating) Responsibilities May Include	Secondary Process - Surface Treatment (Chroming) Responsibilities May Include
	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Dipping Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for dipping department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to dipping production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.	<u>Electro Plating Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for the electro plating department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident report and investigate all accidents related to the electro plating production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.	<u>Chroming Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for chroming department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to the chroming production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.

AREA	Secondary Process - Surface Treatment (Dipping) Responsibilities May Include	Secondary Process - Surface Treatment (Electro Plating) Responsibilities May Include	Secondary Process - Surface Treatment (Chroming) Responsibilities May Include
	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in dipping operation. 14) Monitor and control material usage based on production requirements.	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in electro plating operation. 14) Monitor and control material usage based on production requirements.	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in chroming operation. 14) Monitor and control material usage based on production requirements.
Level 2	<u>Dipping Line Leader</u> 1) Audit dipping production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to dipping production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Electro Plating Line Leader</u> 1) Audit electro plating production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to electro plating production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Chroming Line Leader</u> 1) Audit chroming production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to chroming production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.
Level 1	<u>Dipping Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all dipping operations. 3) Performs on-line and in-process visual inspection of dipping to ensure it meets	<u>Electro Plating Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all electro plating operations. 3) Performs on-line and in-process visual inspection of electro plating to ensure it meets	<u>Chroming Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all chroming operations. 3) Performs on-line and in-process visual inspection of chroming to ensure it meets

AREA	Secondary Process - Surface Treatment (Dipping) Responsibilities May Include	Secondary Process - Surface Treatment (Electro Plating) Responsibilities May Include	Secondary Process - Surface Treatment (Chroming) Responsibilities May Include
	specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine changeovers. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject dipping product that is off specifications. 8) Adhere to safety standards. 9) Perform other related dipping tasks, as required.	specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject electro plating product that is off specifications. 8) Adhere to safety standards. 9) Perform other related electro plating tasks, as required.	specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject chroming product that is off specifications. 8) Adhere to safety standards. 9) Perform other related chroming tasks, as required.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (11 of 16)

AREA	Secondary Process - Laser Marking & Cutting Responsibilities May Include	Secondary Process - Hot Stamping Responsibilities May Include	Secondary Process - Stamping (Decorative stamping) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	<u>Production Manager</u> 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes.	<u>Production Manager</u> 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes.	<u>Production Manager</u> 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes.

AREA	Secondary Process - Laser Marking & Cutting Responsibilities May Include	Secondary Process - Hot Stamping Responsibilities May Include	Secondary Process - Stamping (Decorative stamping) Responsibilities May Include
	16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends.

AREA	Secondary Process - Laser Marking & Cutting Responsibilities May Include	Secondary Process - Hot Stamping Responsibilities May Include	Secondary Process - Stamping (Decorative stamping) Responsibilities May Include
	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Laser Marking & Cutting Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for laser marking & cutting department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to laser marking & cutting production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.	<u>Hot Stamping Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for the hot stamping department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to the hot stamping production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.	<u>Decorative Stamping Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for decorative stamping department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to decorative stamping production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files.

AREA	Secondary Process - Laser Marking & Cutting Responsibilities May Include	Secondary Process - Hot Stamping Responsibilities May Include	Secondary Process - Stamping (Decorative stamping) Responsibilities May Include
	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in laser marking & cutting operation. 14) Monitor and control material usage based on production requirements.	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in hot stamping operation. 14) Monitor and control material usage based on production requirements.	12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in decorative stamping operation. 14) Monitor and control material usage based on production requirements.
Level 2	<u>Laser Marking & Cutting Line Leader</u> 1) Audit laser marking & cutting production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to laser marking & cutting production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Hot Stamping Line Leader</u> 1) Audit hot stamping production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to hot stamping production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Decorative Stamping Line Leader</u> 1) Audit decorative stamping production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to decorative stamping production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.
Level 1	<u>Laser Marking & Cutting Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function.	<u>Hot Stamping Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all hot stamping operations.	<u>Decorative Stamping Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all decorative stamping operations.

AREA	Secondary Process - Laser Marking & Cutting Responsibilities May Include	Secondary Process - Hot Stamping Responsibilities May Include	Secondary Process - Stamping (Decorative stamping) Responsibilities May Include
	2) Ability to rotate through the assembly line, performing all laser marking & cutting operations. 3) Perform on-line and in-process visual inspection of laser marking & cutting to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject laser marking & cutting product that are off specifications. 8) Adhere to safety standards. 9) Perform other related laser marking & cutting tasks, as required.	3) Perform on-line and in-process visual inspection of hot stamping to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject hot stamping product that is off specifications. 8) Adhere to safety standards. 9) Perform other related hot stamping tasks, as required.	3) Perform on-line and in-process visual inspection of decorative stamping to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject decorative stamping product that is off specifications. 8) Adhere to safety standards. 9) Perform other related decorative stamping tasks, as required.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (12 of 16)

AREA	Secondary Process - Stamping (Forming) Responsibilities May Include	Secondary Process - Product Assembly Responsibilities May Include	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.

AREA	Secondary Process - Stamping (Forming) Responsibilities May Include	Secondary Process - Product Assembly Responsibilities May Include	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding) Responsibilities May Include
	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, and testing manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.

AREA	Secondary Process - Stamping (Forming) Responsibilities May Include	Secondary Process - Product Assembly Responsibilities May Include	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding) Responsibilities May Include
	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Forming Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for forming department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) To complete daily production reports and tally sheets and maintain weekly time reports. 7) To comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports.	<u>Product Assembly Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for product assembly department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) To complete daily production reports and tally sheets and maintain weekly time reports. 7) To comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports.	<u>Plastics Sealing & Welding Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for plastics sealing & welding department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) To complete daily production reports and tally sheets and maintain weekly time reports. 7) To comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports.

AREA	Secondary Process - Stamping (Forming) Responsibilities May Include	Secondary Process - Product Assembly Responsibilities May Include	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding) Responsibilities May Include
	10) Prepare incident reports and investigate all accidents related to forming production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in forming operation. 14) Monitor and control material usage based on production requirements.	10) Prepare incident reports and investigate all accidents related to the product assembly production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in product assembly operation. 14) Monitor and control material usage based on production requirements.	10) Prepare incident report and investigate all accidents related to plastics sealing & welding production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in plastics sealing & welding operation. 14) Monitor and control material usage based on production requirements.
Level 2	<u>Forming Line Leader</u> 1) Audit forming production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to forming production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Product Assembly Line Leader</u> 1) Audit product assembly production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to product assembly production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Plastics Sealing & Welding Line Leader</u> 1) Audit plastics sealing & welding production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to plastics sealing & welding production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.

AREA	Secondary Process - Stamping (Forming) Responsibilities May Include	Secondary Process - Product Assembly Responsibilities May Include	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding) Responsibilities May Include
Level 1	<u>Forming Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all forming operations. 3) Perform on-line and in-process visual inspection of forming to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject forming a product that is off specifications. 8) Adhere to safety standards. 9) Perform other related forming tasks, as required.	<u>Product Assembly Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all product assembly operations. 3) Perform on-line and in-process visual inspection of product assembly to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operates equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject product assembly product that is off specifications. 8) Adhere to safety standards. 9) Perform other related product assembly tasks, as required.	<u>Plastics Sealing & Welding Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all plastics sealing & welding operations. 3) Perform on-line and in-process visual inspection of plastics sealing & welding to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject plastics sealing & welding product that are off specifications. 8) Adhere to safety standards. 9) Perform other related plastics sealing & welding tasks, as required.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (13 of 16)

AREA	Secondary Process – Labelling Responsibilities May Include	Secondary Process – Winding Responsibilities May Include	Secondary Process – Slitting Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports.	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports.	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems. 15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports.

AREA	Secondary Process – Labelling Responsibilities May Include	Secondary Process – Winding Responsibilities May Include	Secondary Process – Slitting Responsibilities May Include
	17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements. 6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests.

AREA	Secondary Process – Labelling Responsibilities May Include	Secondary Process – Winding Responsibilities May Include	Secondary Process – Slitting Responsibilities May Include
	8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Labelling Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for labelling department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) To complete daily production reports and tally sheets and maintain weekly time reports. 7) To comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to labelling production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes.	<u>Winding Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for winding department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) To complete daily production reports and tally sheets and maintain weekly time reports. 7) To comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to winding production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes.	<u>Slitting Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for slitting department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) To complete daily production reports and tally sheets and maintain weekly time reports. 7) To comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to slitting production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes.

AREA	Secondary Process – Labelling Responsibilities May Include	Secondary Process – Winding Responsibilities May Include	Secondary Process – Slitting Responsibilities May Include
	13) Carry out technical troubleshooting and problem solving in labelling operation. 14) Monitor and control material usage based on production requirements.	13) Carry out technical troubleshooting and problem solving in winding operation. 14) Monitor and control material usage based on production requirements.	13) Carry out technical troubleshooting and problem solving in slitting operation. 14) Monitor and control material usage based on production requirements.
Level 2	<u>Labelling Line Leader</u> 1) Audit labelling production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to labelling production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Winding Line Leader</u> 1) Audit winding production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to winding production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Slitting Line Leader</u> 1) Audit slitting production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to slitting production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.
Level 1	<u>Labelling Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all labelling operations. 3) Performs on-line and in-process visual inspection of labelling to ensure it meets specifications per work order and procedure instructions.	<u>Winding Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all winding operations. 3) Performs on-line and in-process visual inspection of winding to ensure it meets specifications per work order and procedure instructions.	<u>Slitting Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all slitting operations. 3) Performs on-line and in-process visual inspection of slitting to ensure it meets specifications per work order and procedure instructions.

AREA	Secondary Process – Labelling Responsibilities May Include	Secondary Process – Winding Responsibilities May Include	Secondary Process – Slitting Responsibilities May Include
	4) Assists Team Leader and Technicians with product and/or machine change-overs. 5) Operates equipment above reasonable expectancy levels. 6) Ensures product assembled meets quality standards. 7) Rejects labelling product that are off specifications. 8) Adheres to safety standards. 9) Performs other related labelling tasks, as required.	4) Assists Team Leader and Technicians with product and/or machine change-overs. 5) Operates equipment above reasonable expectancy levels. 6) Ensures product assembled meets quality standards. 7) Rejects winding product that is off specifications. 8) Adheres to safety standards. 9) Performs other related winding tasks, as required.	4) Assists Team Leader and Technicians with product and/or machine change-overs. 5) Operates equipment above reasonable expectancy levels. 6) Ensures product assembled meets quality standards. 7) Rejects slitting product that is off specifications. 8) Adheres to safety standards. 9) Performs other related slitting tasks, as required.

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (14 of 16)

AREA	Secondary Process – Embossing Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding) Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.

AREA	Secondary Process – Embossing Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding) Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion) Responsibilities May Include
	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.

AREA	Secondary Process – Embossing Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding) Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion) Responsibilities May Include
	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.
Level 3	<u>Embossing Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for embossing department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports.	<u>Pipe Welding & Jointing Supervisor Pipe</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for pipe welding & jointing department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments. 9) Prepare daily attendance reports and production reports.	<u>Jointing Project Supervisor</u> 1) Direct the pipe welding & jointing and material handling activities. 2) Maintain standards of quality for pipe welding & jointing activity to meet customer and internal specifications. 3) Coordinate tools, equipment and machinery maintenance requirements. 4) Handle and coordinate employee complaints, suggestions, questions, and conflicts in accordance with the guidelines established in accordance with Company policy/procedure. 5) Oversee training and supervision of hourly employee activities 6) Administer plant rules and procedures 7) Recommend employees and candidates for hire, promotion, demotion, transfer, disciplinary action and/or termination. 8) Prepare staff scheduling and controlling staff overtime in conjunction with the plant production needs.

AREA	Secondary Process – Embossing Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding) Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion) Responsibilities May Include
	10) Prepare incident reports and investigate all accidents related to embossing production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in embossing operation. 14) Monitor and control material usage based on production requirements.	10) Prepare incident report and investigate all accidents related to pipe welding & jointing production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in pipe welding & jointing operation. 14) Monitor and control material usage based on production requirements.	9) Maintain safe working conditions throughout the plant by taking corrective action on unsafe conditions or acts. 10) Assist in the review of labour and manufacturing costs related to pipe welding & jointing operation. 11) Coordinate the implementation of any approved process or procedure changes. 12) Keep current on technical developments and changes in order to instruct and train employees.
Level 2	<u>Embossing Line Leader</u> 1) Audit embossing production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to embossing production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Pipe Welding & Jointing Line Leader</u> 1) Audit pipe welding & jointing production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to pipe welding & jointing production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	<u>Machine Operator</u> 1) Prepare production activity for pipe welding & jointing including set up and start up moulding machines, read blueprints, and check products with callipers, optical comparators, and other testing methods and devices. 2) Ensure machines, auxiliary equipment and connected automated systems for pipe welding & jointing are set to regulation parameters, meet quality standards and all production goals. 3) Provide feedback on machine design and assist tool and die makers to dial in each mould for optimal cycle time and quality. 4) Monitor and troubleshoot pipe welding & jointing processing problems, perform preventive maintenance tasks, and document process changes. 5) Understand the importance of reducing and re-using material scrap to protect environment and save costs.

AREA	Secondary Process – Embossing Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding) Responsibilities May Include	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion) Responsibilities May Include
Level 1	<u>Embossing Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all embossing operations. 3) Perform on-line and in-process visual inspection of embossing to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject embossing product that is off specifications. 8) Adhere to safety standards. 9) Perform other related embossing tasks, as required.	<u>Pipe welding & jointing Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all pipe welding & jointing operations. 3) Perform on-line and in-process visual inspection of pipe welding & jointing to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject pipe welding & jointing product that are off specifications. 8) Adhere to safety standards. 9) Perform other related pipe welding & jointing tasks, as required.	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (15 of 16)

AREA	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling) Responsibilities May Include	Customer Technical Support Responsibilities May Include	Compliance Management Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Production Manager 1) Ensure implementation and adherence to health and safety procedures. 2) Ensure all products are produced to high quality standards. 3) Ensure timely delivery of customer orders. 4) Implement and control the production schedule with planner/buyer. 5) Review and adjust the schedule in conjunction with customer demands. 6) Manage human and material resources to meet production goals. 7) Responsible for all preventative maintenance and repair of equipment. 8) Provide input to management on capital expenditure requirements. 9) Determine equipment use, modification and procurement. 10) Maintain and/or implement (ISO) standard operating production procedures. 11) Conduct monthly safety meeting, with safety team and production personnel. 12) Monitor and set product quality standards. 13) Implement and enforce quality control and tracking programs to meet quality objectives. 14) Analyse production and quality control to detect and correct problems.	Customer Technical Support Manager 1) Lead, manage, and further develop a best-in-class, customer-centric Technical Support team. 2) Create and drive best practice solutions and methodologies for Technical Support team to exceed customer expectations. 3) Develop planning to increase Technical Support team efficiency 4) Develop and track support metrics such as SLA, First Response Time, Time to Resolution, and Customer Satisfaction. 5) Deliver regular reports that provide qualitative and quantitative descriptions of the company technical support performance. 6) Monitor support ticket queue with an emphasis on meeting targeted metrics and managing escalations to resolution. 7) Manage workflows and schedules of direct reports and ensure adequate coverage in a 24x7 customer operating environment. 8) Develop Technical Support team's capability to identify root causes and implement corrective actions to build long term customer loyalty. 9) Advocate for company customers internally and work closely with cross-functional teams to define ways to continually add value to the customer experience.	Quality Assurance Manager 1) Develop and implement a quality production program to ensure conformity of purchase material and final products to quality standards. 2) Maintain a high level of customer service by investigating and correcting issues and complaints relating to quality. 3) Analyse statistical data and product specifications to determine standards that meet quality and reliability expectancy of finished products. 4) Revise and update the quality control manual to incorporate statistical control programs. 5) Work closely with vendors, customers, quality representatives, and company personnel to maximize product reliability and minimize costs. 6) Develop and maintain a supplier quality index, utilizing statistical control programs, to assure that only high-quality vendors are retained. 7) Prepare for and represent the company during all audits. 8) Coordinate and approve all sample submissions of new products and engineering changes. 9) Prepare all necessary reports as required by customers and staff personnel. 10) Design, develop, and implement quality control training programs for all quality control staff.

AREA	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling) Responsibilities May Include	Customer Technical Support Responsibilities May Include	Compliance Management Responsibilities May Include
	15) Determine and implement improvements to production processes. 16) Maintain daily and production efficiency reports. 17) Monitor and review the performance of staff and organise necessary interventions for improvement. 18) Implement cost control programs (scrap reduction, higher output etc.). 19) Ensure efficient collaboration and co-ordination between all departments.	10) Personally, handle escalated client calls and client tickets as appropriate.	11) Supervise quality control team leads and workers to ensure high productivity and product integrity throughout the production cycle. 12) Provide support and expertise to quality control teams.
Level 4	<u>Production Engineer</u> 1) Evaluate manufacturing processes by designing and conducting research programs; applying knowledge of product design, fabrication, assembly, tooling, and materials; conferring with equipment vendors; soliciting observations from operators. 2) Develop manufacturing processes by studying product requirements; researching, designing, modifying, testing and manufacturing methods and equipment; conferring with equipment vendors. 3) Improve manufacturing efficiency by analysing and planning work flow, space requirements, and equipment layout. 4) Assure product and process quality by designing testing methods; testing finished-product and process capabilities; establishing standards; confirming manufacturing processes. 5) Provide manufacturing decision-making information by calculating production, labour, and material costs; reviewing production schedules; estimating future requirements.	<u>Customer Technical Support Executive</u> 1) Identify and troubleshoot process, material, or equipment problems. 2) Develop, assemble, procure or modify existing and new tooling, fixtures, and equipment to ensure efficient production methods. 3) Assist the Manufacturing Engineers with revisions and improvements to manufacturing methods and procedures, including writing change orders and deviations. 4) Complete time studies to quantify processing times and identify areas for process improvements. 5) Assist with hands on training of manufacturing employees on new products, tooling, equipment and process revisions. 6) Schedule, complete, and document routine maintenance on applicable manufacturing and test equipment. 7) Read schematics, assembly drawings, data sheets, and process sheets to perform testing, build fixtures, checkout and troubleshoot equipment.	<u>Quality Assurance Assistant Manager</u> 1) Responsible for quality assurance for plastics production involving all products and processes. 2) Implements the quality management strategy and plans, including resources, systems, timescales, financials, to support, contribute to, and integrate within the organisation's annual business plan and long-term strategy. 3) Promote quality achievement and performance improvement throughout the organisation. 4) Set quality assurance compliance objectives and ensuring that targets are achieved. 5) Ensure compliance requirements with national and international standards and legislation are met. 6) Define quality procedures in conjunction with operations and production. 7) Determine relevant quality-related training needs. 8) Collate and analyse performance data and charts against defined parameters. 9) Ensure tests and procedures are properly understood, carried out and evaluated and that

AREA	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling) Responsibilities May Include	Customer Technical Support Responsibilities May Include	Compliance Management Responsibilities May Include
	6) Prepare a product and process reports by collecting, analysing, and summarizing information and trends. 7) Provide manufacturing engineering information by answering questions and requests. 8) Maintain product and company reputation by complying with government regulations. 9) Keep equipment operational by coordinating maintenance and repair services; following manufacturer's instructions and established procedures; requesting special service.	8) Assist in failure analysis, troubleshooting, rework/repair of non-conforming manufactured product to determine root cause. 9) Perform tests, gather data, and write results/reports with assistance from manufacturing engineering, utilizing various types of electro-mechanical equipment. 10) Promote and support lean manufacturing and continuous improvement activities in manufacturing. 11) Comply with policies, guidelines and regulatory requirements per the organisation Quality Management System.	product off specification are investigated (if necessary). 10) Work with customers' auditors and ensures the execution of corrective action and compliance with customers' specifications. 11) Monitor performance through gathering relevant data and producing statistical reports. 12) Monitor data from measurement devices and initiates corrective action based on data analysis leading cross-functional improvement teams. 13) Perform related audit related to production operation.
Level 3	<u>Product packaging Supervisor</u> 1) Supervise, train, review, promote, discipline and provide feedback to human resources regarding staff issues. 2) Monitor and maintain production schedule for the product packaging department. 3) Coordinate availability of equipment so that production staff can do their job efficiently. 4) Ensure preventative maintenance carried out and ensure repairs are done in an accurate and timely manner according to company maintenance procedure 5) Utilize available personnel to meet the needs of the production schedule 6) Complete daily production reports and tally sheets and maintain weekly time reports. 7) Comply with and enforce company rules of conduct and safety. 8) Communicate with other supervisors and departments.	<u>Customer Technical Support Supervisor</u> 1) Develop a variety of technical content, such as training programs (documentation, hands-on, and digital). 2) Serve as a technical expert within the organisation. 3) Provide trainings for both internal and external customers. 4) Field incoming technical service questions from customers and utilize troubleshooting problem solving techniques to promptly resolve problems with products or systems regarding product issues. 5) Respond to telephone and written inquiries regarding product specification, availability for existing sampling products. 6) Arrange a quick response field service, trainings, and site visit requests with customers and sales team. 7) Responsible for implementation of tech support and parts/service policies and procedures.	<u>Quality Control Supervisor</u> 1) Oversee and verify testing results for plastics product based on determining specification and compliance requirements. 2) Review current QC procedures, testing methods and outcomes to identify overall process efficiency and areas of improvement to augment proper adherence to SQF, GMP & HACCP food safety practices. 3) Audit the procedures of QC Technicians and train employees to ensure quality parameters are met. 4) Assist with plant regulatory, customer, and third-party audits by giving tours, explaining plant programs, and reviewing documents with auditors. 5) Develop and maintains professional working relationships with all internal and external parties and leverages network to compile research data for various projects and studies.

AREA	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling) Responsibilities May Include	Customer Technical Support Responsibilities May Include	Compliance Management Responsibilities May Include
	9) Prepare daily attendance reports and production reports. 10) Prepare incident reports and investigate all accidents related to the product packaging production operation. 11) Document performance, discipline, counselling, achievements, etc. for the employee files. 12) Monitor to ensure that the machines are running according to determined processes. 13) Carry out technical troubleshooting and problem solving in product packaging operation. 14) Monitor and control material usage based on production requirements.	8) Schedule and assign work; oversee employee productivity and quality; maintain time and attendance records. 9) Administer company rules, regulations and policies. 10) Work with subordinates to create individual performance expectations. 11) Provide ongoing feedback regarding progress toward established goals and track progress; 12) Provide employee coaching and training.	6) Investigate issues related to customer complaints and resolves all related issues. 7) Prepare various summaries and trend reporting with all associated analyses, as needed. 8) Assist with the development of standard operating procedures.
Level 2	<u>Product packaging Line Leader</u> 1) Audit product packaging production activities and ensure all procedures are followed. 2) Enforce company policies and safety regulations. 3) Assign duties to product packaging production operator to meet production requirements. 4) Ensure that employees receive appropriate training. 5) Maintain production records as required. 6) Maintain accurate attendance information and authorize work schedules for payroll purposes. 7) Identify and address safety issues in a timely manner. 8) Lead shift meetings and communicate information to employees. 9) Communicate with other supervisors and departments to share information. 10) Other duties may be assigned as needed.	NA	<u>Quality Control Inspector</u> 1) Perform final inspection by following documented work instructions. 2) Perform visual inspection of optical parts. 3) Perform dimensional measurements with manual/hand gauges (callipers, micrometres, etc.). 4) Identify and report systematic and preventable non-conformance occurrences. 5) Reject defective product and document through the Company reporting process 6) Work with production to actively and urgently find continuous improvement opportunities.

AREA	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling) Responsibilities May Include	Customer Technical Support Responsibilities May Include	Compliance Management Responsibilities May Include
Level 1	<u>Product packaging Operator</u> 1) Perform all processes within quality specifications while visually monitoring the machine/equipment used to ensure proper function. 2) Ability to rotate through the assembly line, performing all product packaging operations. 3) Perform on-line and in-process visual inspection of product packaging to ensure it meets specifications per work order and procedure instructions. 4) Assist Team Leader and Technicians with product and/or machine change-overs. 5) Operate equipment above reasonable expectancy levels. 6) Ensure product assembled meets quality standards. 7) Reject product packaging product that is off specifications. 8) Adhere to safety standards. 9) Perform other related product packaging tasks, as required.	<u>NA</u>	<u>NA</u>

Table 4.3: List of Responsibilities for Group 222 according to NOSS Levelling (16 of 16)

AREA	Advanced Plastics Engineering - Laminated Plastics Electronics Responsibilities May Include	Advanced Plastics Engineering - Printed Plastics Electronics Responsibilities May Include	Advanced Plastics Engineering - Additive Manufacturing (3D Printing) Responsibilities May Include
Level 8	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 7	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 6	<u>NA</u>	<u>NA</u>	<u>NA</u>
Level 5	Laminated Plastics Electronics Engineer 1) Adhere to occupational safety and health procedure 2) Provide space, construction and constraint requirements to all related engineering and design groups 3) Develop or coordinate the completion of all necessary models / drawings for tooling construction for moulded parts of various materials and methods. 4) Develop or coordinate the completion of all structural arrangements, construction details and lamination schedules for each FRP part. 5) Perform all necessary calculations for each product. 6) Coordinate with the Core Engineering group all development engineering aspects of electrical systems, mechanical systems, and component development. 7) Provide information to a BOM Technician for lamination, structure, hardware and other developmental details. 8) Develop or coordinate the development drawings and specifications for materials and component parts. 9) Review and approve all documentation prior to release to ensure appropriate engineering standards and construction details are met.	Printed Plastics Electronics Engineer 1) Adhere to occupational safety and health procedure 2) Verify recipe & product design 3) Verify production planning 4) Verify quality management implementation 5) Verify production rectification 6) Evaluate the overall production resource planning 7) Prepare overall department compliance requirement 8) Prepare department operation and capital expenditure 9) Carry out department budget control.	3D Printing Engineer 1) Plan daily production runs for printers 2) Analyse production area of improvements 3) Provide input for automation to enable scaling of the service 4) Clean and sort 3D printed parts 5) Perform finishing processes including polishing, dyeing, air sand blasting and etc. 6) Conduct daily manual checks of our customer's 3D renderings 7) Establish and maintain relationship with the customers 8) Adhere to occupational safety and health procedure 9) Evaluate the overall production resource planning 10) Prepare overall department compliance requirement 11) Prepare department operation and capital expenditure 12) Carry out department budget control.

AREA	Advanced Plastics Engineering - Laminated Plastics Electronics Responsibilities May Include	Advanced Plastics Engineering - Printed Plastics Electronics Responsibilities May Include	Advanced Plastics Engineering - Additive Manufacturing (3D Printing) Responsibilities May Include
	10) Develop test specifications for use by the Applications Engineering group.		
Level 4	<u>Laminated Plastics Electronics Assistant Engineer</u> 1) Troubleshoot machines and machine tooling in the assigned assembly cell and generally support the equipment in that cell to maximize machine uptime 2) Update machine programs when needed due to product revision updates 3) Update work instructions in coordination with engineers 4) Coordination of field service visits for machines when needed 5) Write & monitor process change requests, in coordination with the process engineers 6) Work on and update the status of the actions to resolve issues within the department. 7) Identify opportunities for process improvements and work with the engineers to evaluate and implement improvements	<u>Printed Plastics Electronics Assistant Engineer</u> 1) Adhere to occupational safety and health procedure 2) Prepare recipe & product design 3) Prepare production planning 4) Implement quality management 5) Coordinate production rectification 6) Prepare overall production resource planning 7) Evaluate compliance requirement implementation 8) Prepare production requisition.	<u>3D Printing Assistant Engineer</u> 1) Adhere to occupational safety and health procedure 2) Prepare recipe & product design 3) Prepare production planning 4) Implement quality management 5) Coordinate production rectification 6) Prepare overall production resource planning 7) Evaluate compliance requirement implementation 8) Prepare production requisition.
Level 3	<u>Laminated Plastics Electronics Supervisor</u> 1) Adhere to occupational safety and health procedure 2) Monitor production and quality performance 3) Perform machine troubleshooting 4) Troubleshoot product quality issue 5) Prepare and analyst production report 6) Coordinate resource requirement	<u>Printed Plastics Electronics Supervisor</u> 1) Adhere to occupational safety and health procedure 2) Monitor production and quality performance 3) Perform machine troubleshooting 4) Troubleshoot product quality issue 5) Prepare and analyst production report 6) Coordinate resource requirement	<u>3D Printing Supervisor</u> 1) Adhere to occupational safety and health procedure 2) Monitor production and quality performance 3) Perform machine troubleshooting 4) Troubleshoot product quality issue 5) Prepare and analyst production report 6) Coordinate resource requirement 7) Liaise with product management team on product development

AREA	Advanced Plastics Engineering - Laminated Plastics Electronics Responsibilities May Include	Advanced Plastics Engineering - Printed Plastics Electronics Responsibilities May Include	Advanced Plastics Engineering - Additive Manufacturing (3D Printing) Responsibilities May Include
Level 2	Laminated Plastics Electronics Technician 1) Measure work piece dimensions, using various measuring instruments to determine accuracy of machine operations. 2) Review work orders to determine set up procedure, machining sequence, and dimensions of finished work piece. 3) Clean and store rollers, quads and pans used in the production process, loads appropriate paper on paper stand. 4) Mix ink and coatings to specifications on job order. 5) Monitor operation of unit and production details such as pressures, temperatures, roll size, job specifications, and oven settings, etc. 6) Observe and listens to operating machines or equipment to diagnose machine malfunction and determine need for adjusting or repair. 7) Verify materials are accurate regarding colour, size, thickness and quantity, etc., to meet customer specification. 8) Adjust controls to regulate speed, temperature, and pressure of laminating rollers. 9) Perform minor equipment and tool maintenance. 10) Inspect finished product per company guidelines to insure quality.	Printed Plastics Electronics Technician 1) Carry out machine operation 2) Inform machine breakdown 3) Review work orders to determine set up procedure, machining sequence, and dimensions of finished work piece. 4) Update production report/checklist. 5) Adhere to occupational safety and health procedure. 6) Observe and listen to operating machines or equipment to diagnose machine malfunction and determine need for adjusting or repair.	3D Printing Technician 1) Evaluate customers' design to ensure they are compatible with 3D printing 2) Provide input on ways to streamline the printing process, performing printer finishing tasks. 3) Prepare 3D models for printing. 4) Conduct regular and preventative maintenance on the factory's 3D printers and other equipment. 5) Perform work in a safe manner and adhere to safety programs, processes, and procedures. 6) Contribute to the improvement of internal automation tools, software, and factory processes. 7) Work to continuously guarantee and improve customer satisfaction.
Level 1	<u>NA</u>	<u>NA</u>	<u>NA</u>

4.4 MAPPING OS vs AVAILABLE NOSS

Table 4.4: OS vs Existing NOSS (1 of 9)

Section (C) Manufacturing			
Division	(22) Manufacture of Rubber and Plastics Products		
Group	(222) Manufacture of Plastics Products		
Job Area	Plastics Product Development	Plastics Blending & Mixing	Plastics Product Production Operation
8	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available
5	Research & Development Engineer*	No Level	Production Manager
4	Research & Development Assistant Engineer*	No Level	Production Engineer
3	Research & Development Technician	Blending & Mixing Supervisor	Production Supervisor
2	No Level	Blending & Mixing Operator	Line Leader
1	No Level	No Level	Production Operator

Table 4.4: OS vs Existing NOSS (2 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Primary Process - Injection Moulding Mould Setting (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam)	Primary Process - Injection Moulding Machine Operation (Double Injection, Gas Injection, Heat & Cold Treatment, Insert Moulding, Foam)	Primary Process - Blow Moulding Mould Setting (Extrusion, Injection)	Primary Process - Blow Moulding Machine Operation (Extrusion, Injection)	Primary Process - Extrusion (Cast Film)	Primary Process - Extrusion (Blown Film)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Injection Moulding Specialist	Injection Moulding Specialist	Blow Moulding Specialist	Blow Moulding Specialist	Not Available	Not Available
5	MC-100-5:2012 Plastic Production Technology	MC-100-5:2012 Plastic Production Technology	Blow Moulding Manager	Blow Moulding Manager	Cast Film Manager	C222-001-5:2017 Plastics Film Extrusion Management
4	MC-100-4:2012 Plastic Production Technology	MC-100-4:2012 Plastic Production Technology	Blow Moulding Engineer	Blow Moulding Engineer	Cast Film Engineer	C222-001-4:2017 Plastics Film Extrusion Processing and Administration
3	MC-101-3:2015 Plastic Injection Moulding Operation Start Up Supervision	MC-102-3:2015 Plastic Blow Moulding Operation & Maintenance Supervision	Blow Moulding Supervisor	Blow Moulding Supervisor	Cast Film Supervisor	C222-001-3:2017 Plastics Film Extrusion Process Supervision & Control
2	MC-101-2:2015 Plastic Injection Moulding Operation Start Up	MC-102-2:2015 Plastic Blow Moulding Operation & Maintenance	Blow Mould Setter	Blow Moulding Machine Technician	Cast Film Technician	C222-001-2:2017 Plastics Film Extrusion Process Operation
1	No Level	No Level	No Level	No Level	No Level	No Level

Table 4.4: OS vs Existing NOSS (3 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Primary Process - Extrusion (Profile)	Primary Process - Extrusion (Sheet)	Primary Process - Extrusion (Pipe)	Primary Process - Extrusion (Compounding)	Primary Process - Extrusion (Wire & Cable)	Primary Process - Extrusion (Mono Tape/Yarn)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5	Profile Extrusion Manager	Sheet Extrusion Manager	Pipe Extrusion Manager*	Compounding Manager*	Wire & Cable Extrusion Manager*	Mono Tape/ Yarn Manager
4	Profile Extrusion Engineer	Sheet Extrusion Engineer	Pipe Extrusion Engineer*	Compounding Engineer*	Wire & Cable Extrusion Engineer*	Mono Tape/ Yarn Engineer
3	Profile Extrusion Supervisor	Sheet Extrusion Supervisor	Pipe Extrusion Supervisor*	Compounding Supervisor*	Wire & Cable Extrusion Supervisor*	Mono Tape/ Yarn Supervisor
2	Profile Extrusion Technician	Sheet Extrusion Technician	Pipe Extrusion Technician*	Compounding Technician*	Wire & Cable Extrusion Technician*	Mono Tape/ Yarn Technician
1	No Level	No Level	No Level	No Level	No Level	No Level

Table 4.4: OS vs Existing NOSS (4 of 9)

Section (C) Manufacturing					
Division	(22) Manufacture of Rubber and Plastics Products				
Group	(222) Manufacture of Plastics Products				
Job Area	Primary Process - Extrusion (Lamination & Coating)	Primary Process - Extrusion (Calendaring)	Primary Process - Extrusion (Foam)	Primary Process - Rotational Moulding	Primary Process - Compression Moulding
8	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available
5	Lamination& Coating Manager*	Calendaring Extrusion Manager	Foam Extrusion Manager	MC-100-5:2012 Plastic Production Technology	MC-100-5:2012 Plastic Production Technology
4	Lamination& Coating Engineer*	Calendaring Extrusion Engineer	Foam Extrusion Engineer	MC-100-4:2012 Plastic Production Technology	MC-100-4:2012 Plastic Production Technology
3	Lamination& Coating Supervisor	Calendaring Extrusion Supervisor	Foam Extrusion Supervisor	Rotational Moulding Supervisor	MC-100-3:2012 Plastic Production Operation
2	Lamination& Coating Technician	Calendaring Extrusion Technician	Foam Extrusion Technician	Rotational Moulding Technician	No Level
1	No Level	No Level	No Level	No Level	No Level

Table 4.4: OS vs Existing NOSS (5 of 9)

Section (C) Manufacturing					
Division	(22) Manufacture of Rubber and Plastics Products				
Group	(222) Manufacture of Plastics Products				
Job Area	Primary Process – Thermoforming (Pressure & Vacuum Forming)	Primary Process – Non-Woven	Secondary Process - Printing (Film Printing)	Secondary Process - Printing (Moulding)	Secondary Process - Bag Making
8	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available
5	Thermoforming Manager*	Non-Woven Manager	Production Manager	Production Manager	Production Manager
4	Thermoforming Engineer*	Non-Woven Engineer	Production Engineer	Production Engineer	Production Engineer
3	Thermoforming Supervisor*	Non-Woven Supervisor	Film Printing Supervisor*	Moulding Printing Supervisor*	Bag Making Supervisor
2	Thermoforming Technician*	Non-Woven Technician	Film Printing Line Leader*	Moulding Printing Line Leader*	Bag Making Line Leader
1	No Level	No Level	Film Printing Operator*	Moulding Printing Operator*	Bag Making Operator

Table 4.4: OS vs Existing NOSS (6 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Secondary Process - Bristling/Tufting	Secondary Process - Surface Treatment (Spray & Painting)	Secondary Process - Surface Treatment (Dipping)	Secondary Process - Surface Treatment (Electro Plating)	Secondary Process - Surface Treatment (Chroming)	Secondary Process - Laser Marking & Cutting
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager
4	Production Engineer	Production Engineer	Production Engineer	Production Engineer	Production Engineer	Production Engineer
3	Bristling Supervisor	Spray & Painting Supervisor	Dipping Supervisor	Electro Plating Supervisor	Chroming Supervisor	Laser Marking & Cutting Supervisor
2	Bristling Technician	Spray & Painting Line Leader	Dipping Line Leader	Electro Plating Line Leader	Chroming Line Leader	Laser Marking & Cutting Line Leader
1	Bristling Operator	Spray & Painting Operator	Dipping Operator	Electro Plating Operator	Chroming Operator	Laser Marking & Cutting Operator

Table 4.4: OS vs Existing NOSS (7 of 9)

Section (C) Manufacturing					
Division	(22) Manufacture of Rubber and Plastics Products				
Group	(222) Manufacture of Plastics Products				
Job Area	Secondary Process - Hot Stamping	Secondary Process - Stamping (Decorative stamping)	Secondary Process - Stamping (Forming)	Secondary Process - Product Assembly	Secondary Process - Plastics Sealing & Welding (Heat, Butt Weld, Cementing, Ultrasonic Welding)
8	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available
5	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager
4	Production Engineer	Production Engineer	Production Engineer	Production Engineer	Production Engineer
3	Hot Stamping Supervisor	Decorative Stamping Supervisor	Forming Supervisor	Assembly Supervisor	Plastics Sealing & Welding Supervisor
2	Hot Stamping Line Leader	Decorative Stamping Line Leader	Forming Line Leader	Assembly Line Leader	Plastics Sealing & Welding Line Leader
1	Hot Stamping Operator	Decorative Stamping Operator	Forming Operator	Assembly Operator	Plastics Sealing & Welding Operator

Table 4.4: OS vs Existing NOSS (8 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Secondary Process - Labelling	Secondary Process - Winding	Secondary Process - Slitting	Secondary Process - Embossing	Secondary Process - Pipe Welding & Jointing (Pipe Product Assembly & Pipe Ultrasonic Welding)	Secondary Process - Pipe Welding & Jointing (Pipe Jointing - Solvent Cementing, Socket Fusion, Electro Fusion, Butt Fusion)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager	Production Manager
4	Production Engineer	Production Engineer	Production Engineer	Production Engineer	Production Engineer	Production Engineer
3	Labelling Supervisor	Winding Supervisor	Slitting Supervisor	Embossing Supervisor	Pipe Assembly Supervisor	Pipe Jointing Project Supervisor
2	Labelling Line Leader	Winding Line Leader	Slitting Line Leader	Embossing Line Leader	Pipe Assembly Line Leader	Machine Operator
1	Labelling Operator	Winding Operator	Slitting Operator	Embossing Operator	Pipe Assembly Operator	No Level

Table 4.4: OS vs Existing NOSS (9 of 9)

Section (C) Manufacturing						
Division	(22) Manufacture of Rubber and Plastics Products					
Group	(222) Manufacture of Plastics Products					
Job Area	Product Packaging (Cartoning, Bag Packaging, Palletising, Labelling, Strapping, Bundling, Coiling)	Customer Technical Support	Compliance Management	Advanced Plastics Engineering - Laminated Plastics Electronics	Advanced Plastics Engineering - Printed Plastics Electronics	Advanced Plastics Engineering - Additive Manufacturing (3D Printing)
8	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
7	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
6	Not Available	Not Available	Not Available	Laminated Plastics Electronics Specialist	Printed Plastics Electronics Specialist	3D Printing Specialist
5	Production Manager	Customer Technical Manager	Quality Assurance Manager	Laminated Plastics Electronics Engineer*	Printed Plastics Electronics Engineer*	3D Printing Engineer*
4	Production Engineer	Customer Technical Executive	Quality Assurance Assistant Manager	Laminated Plastics Electronics Assistant Engineer*	Printed Plastics Electronics Assistant Engineer*	3D Printing Assistant Engineer*
3	Packaging Supervisor	Customer Technical Supervisor	Quality Control Supervisor	Laminated Plastics Electronics Supervisor*	Printed Plastics Electronics Supervisor*	3D Printing Supervisor*
2	Packaging Line Leader	No Level	Quality Control Inspector	Laminated Plastics Electronics Technician*	Printed Plastics Electronics Technician*	3D Printing Technician*
1	Packaging Operator	No Level	No Level	No Level	No Level	No Level

4.5 Occupational Description (OD)

Occupational of Job Description is a broad, general, and written statement of a specific job, based on the findings of a job analysis. It generally includes duties, purpose, responsibilities, scope, and working conditions of a job along with the job title, and the name or designation of the person to whom the employee reports. The Occupational Description provided in Annex 3 are the job titles that have been identified as critical or hard-to-fill job as suggested by industry representatives from the focus group.

4.6 Skills in Demand

This section elaborates on the survey findings regarding jobs and skills in demand.

i. Jobs in Demand

The jobs in demand as stated below were obtained from discussion in development workshops.

Table 4.5: Jobs in Demand

No.	Category of Workers	Feedback from respondent	Area of improvement
1.	Low Skilled Workers (Elementary workers)	• The majority are foreign workers • Difficult to recruit local workers • Support on the business ramp-up (to support production demands)	• Discipline issues • Communication skills • Able to read and write • Able to interpret instructions and product specification document • Adapt to automation skills set.
2.	Semi-skilled Workers (Technician, Machine Setter and Line Leader)	• Leader to sustain the team to produce the KPI • Working on a shift pattern • Specific knowledge, skills needed	• Communication skills • Able to interpret instructions and product specification (i.e. drawing) • Skills in utilising the basic computer function of various systems used in the production line such as real time monitoring, automation systems etc. • Adapt to automation skills set • Skills in critical processes

No.	Category of Workers	Feedback from respondent	Area of improvement
3.	Skilled Workers (Managers, Engineers, and Specialist)	• High in Demand • To fulfil Key Result Areas (KRA) • To ensure the daily operation runs smoothly • Engineers with experience in various product and plastics production process are usually in more demand • Working environment (foreign workers)	• Technical skills in operating and handling equipment • Possesses knowledge of current technology • Team work, leadership skills and communication skills • Analytical skills and creative thinking

ii. Skills Gaps

In addition to category of workers in demand as highlighted above, the Plastics Industry is in demand of workers who demonstrate the skills below:

Table 4.6: Skills Gaps

No.	Job Area	Feedback from respondent	Area of improvement
1.	• Mould machine operation • Basic machine maintenance		
	Technical Skills in Engineering and Manufacturing from Technician level till Engineer	• Inability to adapt to new technology • Outdated and insufficient equipment and machinery	• Training content that focusing in machine operation and maintenance • Review of syllabus at training centres or universities • A joint venture with industry to provide facilities
2.	Communication (<i>English Language and Bahasa Melayu literacy for foreign worker</i>)		
	Overall for all job areas from technician level till management level	• Inability to comprehend basic work instructions	• Workplace communication upskilling
3.	Troubleshooting and Problem-solving skills		
	Overall for all job areas for Technician levels and above	• Insufficient years of working experience • Limited knowledge and experience dampen the problems solving skill	• Focusing training in problem solving and personal development • More approaches using Problem Based Learning in training syllabus

No.	Job Area	Feedback from respondent	Area of improvement
4.	Basic problem solving and escalation of issues to superior		
	Overall for all job areas starting from the Technician level	• Lackadaisical attitude towards work • Lack of team work and unclear channel of communication	• Focusing training in problem solving and personal development • More approaches using Problem Based Learning in training syllabus
5.	Technical skills in engineering		
	From Technician level till Engineer	• Inability to adapt to new technology • Outdated and insufficient equipment and machinery	• Advanced technical training • Revision of training contents • Industry collaboration to provide experience and technical know-how
6.	Computer literacy		
	From Technician level till Engineer	Incompetency in performing work that requires computerised system	• Training in basic computer function at the workplace

iii. Emerging Skills

The following are emerging skills as highlighted by the industry:

Table 4.7: Emerging Skills

EMERGING SKILLS	JOB AREAS/ JOB TITLES	REASON OF REQUIRED EMERGING SKILLS
IR 4.0 related skills- Interpretation of data, utilisation of automation systems which include the ability to configure, utilise, debug, maintain the system	• Engineering	• Enhancing productivity by cost reduction and efficiency improvement • Minimising human error
	• Process Engineering	

4.7 Chapter Conclusion

Based on the discussions with panel members during the development workshops and survey findings, the OS of the industry is produced in this chapter. The OS would provide information about the competency or job areas applicable to the industry, and the skill level of the different job titles, according to the MOSQF Level Descriptors, and the available career paths.

The industry represents one of the most innovative sectors in the economy, which combines all of the key future technologies including electronics, robotics, materials and software integration and thus a key player in the next industrial revolution – Industry 4.0. The total number of job area identified is 46 with 210 job titles. A total of 94 job titles identified as relevant to Industry 4.0.

The jobs and skills in demand, and the specific steps proposed to be taken by various parties to bridge the skills gaps are elaborated so that the parties concerned could take the necessary steps to overcome such challenges.

CHAPTER 5:

DISCUSSION, RECOMMENDATION AND CONCLUSION

5.1 Discussion

The global industry structure is undergoing unprecedented changes powered by rapid technological innovations and trade liberalisation policies. Both of this global force has intensified competition for local players in the plastics industry. To ensure that the local industry enhances its global competitiveness, local firm must move up the innovation value chain at a much faster pace than other global and regional players by empowering human capital.

Based on the findings obtained throughout the Occupational Analysis on the industry, 46 job areas have been identified and confirmed to be in tandem with MSIC. The job titles identified require a holistic view in the development of standard, skills training and also certification for recognition. If the competency requirements documented in NOSS format, the personnel in these areas will obtain a more structured skills training and will also enable personnel who are experienced and skilled to be certified.

5.2 Recommendation

It is hoped that the result of this OF will be used as reference to fulfil the future plans of developing skilled personnel and certifying Malaysians in this sector towards improving the quality of the local sector and thus spurring Malaysia's global competitiveness.

There are several options when addressing or mitigating workforce demand and supply. It may include establishing and maintaining partnerships with other agencies or departments, or educational institutions to increase external talent pools and also through the training of existing staff in line with new skills requirements.

Based on the above comments, specific recommendations are listed below:

- i) To continue and streamline efforts in NOSS development for areas under the sector in line with the findings of this analysis. This includes the development of the NOSS of the sectors and sub-sectors that are in demand and have not been developed.

- ii) To encourage apprenticeship training (National Dual Training System –NDTS) for the related sub sector and job area.
- iii) Promote certification of existing and experienced personnel in the sector through Recognition of Prior Achievement (*Pengiktirafan Pencapaian Terdahulu – PPT*).

5.3 Conclusion

The conclusion is based on the specified objectives of the OF as elaborated below:

5.3.1 Objective 1: Occupational Structure

As a result of the Plastics Industry OF conducted together with expert panel members from various organisations, a total of 46 job areas and 210 job titles have been identified.

By planning and conducting the training and certification of this sector's personnel in the near future, it is hoped that there will be a steady flow of local skilled and certified workers.

The total number of job titles related to IR 4.0 is 94 job titles. These job titles are only involving Level 4 and above. These groups of personnel are expected to be competent in the age of Industry 4.0. They must possess the pre-requisite such as the ability to process and analyse data obtained from machines, understanding machine to machine communication, IT security & data protection, understanding visual data output & making decisions, statistical knowledge, interdisciplinary & generic knowledge about technology, and specialized knowledge about manufacturing activities and processes.

The Malaysian plastics industry is a well-established industry with a strong performance record and is an important contributor to high skilled and high-income employment. The objective of identifying the critical job title is fulfilled as follows: -

- i) Assess the current and future skills requirements of the Malaysian Plastics Industry;
- ii) Identifying current training practice for the skilled workforce in plastics industry;
- iii) Analysing skills requirement based on government initiatives;

- iv) Listing out job titles that require attention in terms of skills standard and curriculum development for the purpose of training and workers competency recognition.

The panel of the Focus Group Discussion members has reviewed the list and specified the critical job titles as in the below table.

Table 5.1: List of Critical Job Titles

No.	Critical Job Title	Group/Area	Level
1	Pipe Extrusion Technician	222/Primary Process - Extrusion (Pipe)	2
2	Pipe Extrusion Supervisor	222/Primary Process - Extrusion (Pipe)	3
3	Pipe Extrusion Engineer	222/Primary Process - Extrusion (Pipe)	4
4	Pipe Extrusion Manager	222/Primary Process - Extrusion (Pipe)	5
5	Compounding Technician	222/Primary Process - Extrusion (Compounding)	2
6	Compounding Supervisor	222/Primary Process - Extrusion (Compounding)	3
7	Compounding Engineer	222/Primary Process - Extrusion (Compounding)	4
8	Compounding Manager	222/Primary Process - Extrusion (Compounding)	5
9	Wire & Cable Extrusion Technician	222/Primary Process - Extrusion (Wire & Cable)	2
10	Wire & Cable Extrusion Supervisor	222/Primary Process - Extrusion (Wire & Cable)	3
11	Wire & Cable Extrusion Engineer	222/Primary Process - Extrusion (Wire & Cable)	4
12	Wire & Cable Extrusion Manager	222/Primary Process - Extrusion (Wire & Cable)	5
13	Lamination& Coating Technician	222/Primary Process - Extrusion (Lamination & Coating)	2
14	Lamination& Coating Supervisor	222/Primary Process - Extrusion (Lamination & Coating)	3
15	Lamination& Coating Engineer	222/Primary Process - Extrusion (Lamination & Coating)	4
16	Lamination& Coating Manager	222/Primary Process - Extrusion (Lamination & Coating)	5
17	Thermoforming Technician	222/ Primary Process - Thermoforming (Pressure Forming)	2
18	Thermoforming Supervisor	222/ Primary Process - Thermoforming (Pressure Forming)	3

No.	Critical Job Title	Group/Area	Level
19	Thermoforming Engineer	222/ Primary Process - Thermoforming (Pressure Forming)	4
20	Thermoforming Manager	222/ Primary Process - Thermoforming (Pressure Forming)	5
21	Film Printing Operator	222/ Secondary Process - Printing (Film Printing)	1
22	Film Printing Line Leader	222/ Secondary Process - Printing (Film Printing)	2
23	Film Printing Supervisor	222/ Secondary Process - Printing (Film Printing)	3
24	Moulding Printing Operator	222/ Secondary Process - Printing (Moulding)	1
25	Moulding Printing Line Leader	222/ Secondary Process - Printing (Moulding)	2
26	Moulding Printing Supervisor	222/ Secondary Process - Printing (Moulding)	3
27	Laminated Plastics Electronics Technician	222/ Advanced Plastics Engineering - Laminated Plastics Electronics	2
28	Laminated Plastics Electronics Supervisor	222/ Advanced Plastics Engineering - Laminated Plastics Electronics	3
29	Laminated Plastics Electronics Assistant Engineer	222/ Advanced Plastics Engineering - Laminated Plastics Electronics	4
30	Laminated Plastics Electronics Engineer	222/ Advanced Plastics Engineering - Laminated Plastics Electronics	5
31	Printed Plastics Electronics Technician	222/ Advanced Plastics Engineering - Printed Plastics Electronics	2
32	Printed Plastics Electronics Supervisor	222/ Advanced Plastics Engineering - Printed Plastics Electronics	3
33	Printed Plastics Electronics Assistant Engineer	222/ Advanced Plastics Engineering - Printed Plastics Electronics	4
34	Printed Plastics Electronics Engineer	222/ Advanced Plastics Engineering - Printed Plastics Electronics	5
35	3D Printing Technician	222/ Advanced Plastics Engineering - Additive Manufacturing (3D Printing)	2
36	3D Printing Supervisor	222/ Advanced Plastics Engineering - Additive Manufacturing (3D Printing)	3
37	3D Printing Assistant Engineer	222/ Advanced Plastics Engineering - Additive Manufacturing (3D Printing)	4

No.	Critical Job Title	Group/Area	Level
38	3D Printing Engineer	222/ Advanced Plastics Engineering - Additive Manufacturing (3D Printing)	5

Based on the industry feedback, the NOSS for OPP Film Level 2 & 3 (NOSS Code: PG-090-2:2010 & PG-090-3:2010) are no longer relevant to the industry as the industry has adopted plastics extrusion technology in production method. The development committee has suggested that the NOSS to be phased out.

5.3.2 Objective 2: Occupational Descriptions

The Occupational Descriptions for all the different job titles were obtained during the workshops. These Occupational Descriptions will also serve as reference of job scope and the required competencies for NOSS development.

5.3.3 Objective 3: Skills in Demand

Based on the discussion and industry input findings, the skills in demand that need to be emphasized for the worker in this area are as follows:

- Communication skills
- Product knowledge
- Customer service skills
- General attitude towards work (commitment, resourcefulness, teamwork, etc.)
- Diagnostic skills
- Troubleshooting / problem solving skills
- Strong technical aptitude / manual dexterity
- Competent in using computerised / other mechanical devices
- English language competency

Troubleshooting/ problem solving skills, Strong technical aptitude/ manual dexterity, and Product knowledge is the top 3 skills in high demand by the industry. The skills above are encouraged to be included in the training curriculum according to the respective areas.

Several essential steps need to be undertaken jointly by stakeholders from industry, training/ academic institutions and the relevant accreditation authorities to ensure that the critical occupation needs of industry are addressed.

The broad direction for achieving this:

- i) Identify and assess the qualifications, National Occupational Skills Standard (NOSS), and competencies associated with the identified critical job titles.
- ii) Align and evaluate the existing training curriculum and training packages.
- iii) Coordination among stakeholder to
 - Revise or develop required curriculum and training packages
 - Expand or create new apprenticeships/ internships / attachment schemes
 - Joint technology and knowledge transfer between instructor / training entities with industry experts

The result of this OF research and development work will be able to be used as a reference as how to fulfil the future plans of developing skilled personnel and certifying Malaysians in the Plastics Industry towards enhancing services provided by the sector players.

REFERENCES

- i. Department of Skills Development. Guidelines for Occupational Framework Action Research 2018: http://www.skillsmalaysiainvite.gov.my/wp-content/files_mf/1402092228SMIGuideBook.pdf (accessed July 2018)
- ii. Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p62> (accessed July 2018)
- iii. Department of Skills Development, Malaysia: <http://inoss.gov.my/index.php/main>
- iv. Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p62> (accessed July 2018)
- v. Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p76> (accessed July 2018)
- vi. Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p137> (accessed July 2018)
- vii. Department of Statistics, Malaysia. The Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0: <https://www.dosm.gov.my.p137> (accessed July 2018)
- viii. Malaysian Investment Development Authority (MIDA): www.mida.gov.my/home/about-mida/posts (accessed July 2018)
- ix. Malaysian Investment Development Authority (MIDA): <http://www.mida.gov.my/home/staff-directory/posts/?group=60023eb69cfcaa383a08e20b5d22596a> (accessed July 2018)
- x. Ministry of International Trade and Industry (MITI): <http://www.miti.gov.my/index.php/pages/view/1977?mid=27> (accessed July 2018)
- xi. Department of Occupational Safety and Health (DOSH): <http://www.dosh.gov.my/index.php/en/about-us/dosh-profile> (accessed July 2018)
- xii. Department of Environment (DOE): <https://www.doe.gov.my/portalv1/en/tentang-jas/pengenalan/dasar-alam-sekitar> (accessed July 2018)
- xiii. Royal Malaysia Custom Department (RMCD): http://www.customs.gov.my/en/ci/Pages/ci_ed.aspx (accessed July 2018)
- xiv. Department of Occupational Safety and Health (DOSH). Factories and Machinery Act 1967 (Revised 1974): <http://www.dosh.gov.my/index.php/en/list-of-documents/acts/26-03-factories-and-machinery-act-1967-revised-1974-acts-139/file> (accessed July 2018)
- xv. Department of Occupational Safety and Health (DOSH). Occupational Safety and Health Act 1994: <http://www.dosh.gov.my/index.php/en/list-of-documents/acts/23-02-occupational-safety-and-health-act-1994-act-514/file> (accessed July 2018)
- xvi. Ministry of Finance (MoF). Promotion of Investments Act 1986: <http://www.treasury.gov.my/index.php/en/tax/item/1160-promotion-of-investment-act-1986.html> (accessed July 2018)
- xvii. Malaysian Investment Development Authority (MIDA). Industrial Coordination Act 1975: http://www.mida.gov.my/env3/uploads/Publications_pdf/Guide_For_MalaysianManufacturers/English/english.pdf (accessed July 2018)
- xviii. Department of Environment (DOE). Environmental Quality Act 1974: https://www.doe.gov.my/portalv1/wp-content/uploads/2015/01/Environmental_Quality_Act_1974_-_ACT_127.pdf (accessed July 2018)

- xix. Malaysian Plastics Manufacturers Association (MPMA). Government Policies, Facilitations & Assistance for The Plastics and The Mould and Die Industries in Malaysia:
http://www.mpma.org.my/Documents/1.0%20Presentation%20Slide_Chemical%20&%20Advanced%20Material%20Division%20.pdf (accessed July 2018)
- xx. Department of Statistics Malaysia (DOSM), Monthly Manufacturing Statistics (Various Issues):
https://www.dosm.gov.my/v1/index.php?r=column/cpublication&menu_id=S2E5ZklhcKxmejVSaFFJb29acXZvUT09 (accessed July 2018)
- xxi. Malaysian Plastics Manufacturers Association (MPMA). Performance of The Malaysian Plastics Industry 2017 Report (accessed July 2018)
- xxii. Department of Statistics Malaysia (DOSM), Malaysia External Trade Statistics Online: <https://metsonline.stats.gov.my/> (accessed July 2018)
- xxiii. Malaysian Investment Development Authority (MIDA). Malaysia Investment Performance Report 2016:
http://www.mida.gov.my/home/administrator/system_files/modules/photo/uploads/20170302155931_Slides%20Presentation%20Malaysia%20Investment%20Performance%202016.pdf (accessed July 2018)
- xxiv. Germany Trade and Invest. The Plastics Industry in Germany – Germany Trade & Invest 2016 report:
<http://www.gtai.de/GTAI/Navigation/EN/Invest/Industries/Materials-processing/plastics.html> (accessed July 2018)
- xxv. Thailand Convention & Exhibition Bureau 2017 report:
<https://www.buinesseventsthailand.com/about-us/annual-reports/> (accessed July 2018)
- xxvi. Department of Skills Development (DSD). NOSS Registry May 2018.
<http://dsd.gov.my/index.php/my/> (accessed July 2018)
- xxvii. Department of Statistics Malaysia. (2008). Malaysia Standard Industrial Classification (MSIC). p.C-150 (accessed July 2018)
- xxviii. Department of Occupational Safety and Health (DOSH). (2018, March 12). Retrieved from <http://www.dosh.gov.my> (accessed July 2018)
- xxix. Department of Environment (DOE). (2018, March 12). Retrieved from <https://www.doe.gov.my/portalv1/en/tentang-jas/pengenalan/perkhidmatan-teras> (accessed July 2018)
- xxx. DSD. (2018). Daftar NOSS January 2018. Retrieved from <http://dsd.gov.my>
- xxxi. DSOM. (2008). Malaysia Standard Industrial Classification 2008 (MSIC 2008) Version 1.0
- xxxii. Economic Planning Unit (EPU), JPM. (2015). Eleventh Malaysia Plan, 2016-2020. Percetakan Nasional Malaysia Berhad.
- xxxiii. Malaysian Plastics Manufacturers Association (MPMA). (2017, February 16). A Study of The Malaysian Plastics Industry Skills Needs. www.mpma.org.my.
- xxxiv. Malaysian Investment Development Authority (MIDA). (2018, March 12). Retrieved from <http://www.mida.gov.my/home/about-mida/posts/>
- xxxv. Malaysian Plastics Manufacturers Association (MPMA). (2018, March 12) Retrieved from <http://www.mpma.org.my/aboutus.html>
- xxxvi. MIDA. (2016). Annual Report 2016: Gearing for Strategic Growth
- xxxvii. MIDA. (2016). Malaysian Investment Performance Report: Strengthening the Growth Momentum

- xxxviii. Ministry of International Trade and Industry (MITI). (2017). 25th MITI Report 2016.
- xxxix. MITI. Industry 4.0. FAQ. www.miti.gov.my
- xl. Royal Malaysian Customs Department (RMCD). (2018, March 12). Retrieved from http://www.customs.gov.my/en/ci/Pages/ci_cd.aspx
- xli. Unit Perancang Ekonomi. (2018, March 15). Retrieved from <http://epu.gov.my/en/rmk/eleventh-malaysia-plan-2016-2020>

ANNEX 1 : LIST OF CONTRIBUTORS

**LIST OF SECTOR PANEL MEMBERS FOR THE MANUFACTURING OF PLASTICS
PRODUCT SECTOR FRAMEWORK DEVELOPMENT**

NO	NAME	EXPERTISE	POSITION	ORGANISATION
1	Ahmad Khairuddin Bin Sha'aban	Plastics Extrusion, Materials for Film Extrusion	Plastics Production Specialist	Klang Hock Plastic Industries Sdn Bhd
2	Leong Peng Kong	Film Extrusion, Injection Moulding, Blow Moulding	Technical Advisor	May-Plastics Sdn Bhd
3	Oh Beng Kooi	Film Extrusion	Managing Director	Plast Konsep Training & Konsultancy PLT
4	Uthayakumar Ramaiah	Injection Moulding and Mould Development	Quality Assurance Manager	Triplus Industry Sdn Bhd
5	Mohd Hafiz Bin Yacob	Injection Moulding	Quality Assurance Manager	Guppy Plastic Industries Sdn Bhd
6	Abdul Mazlan Bin Abdul Razak	Materials for Film Extrusion and Injection Moulding	Head of Customer Service Support	Petronas Chemical Group
7	Tan Weng Keong	Pipe Extrusion	Director	Piping Technology Sdn Bhd
8	Woon Chee Yoong	Injection Moulding	Technical Service Manager	Everyday Brush Industries (M) Sdn Bhd

LIST OF OCCUPATIONAL FRAMEWORK TECHNICAL EVALUATION COMMITTEE

NO.	NAME	ORGANISATION
1	YA Liew	Managing Director Wohltec Medical Sdn Bhd
2	CY Wee	Director Chong Wah Plastics Sdn Bhd
3	Professor Dr Mansor Bin Ahmad	Senior Lecturer Universiti Putra Malaysia (UPM)
4	Tan Tin Nam	Technical Advisor Everyday Brush Industries (M) Sdn Bhd
5	Ts Dr Muzafar Bin Zulkifli	Senior Lecturer Polymer Engineering Technology Section, University of Kuala Lumpur (UniKL) MICET

LIST OF DEPARTMENTS OF SKILLS DEVELOPMENT (DSD) OFFICERS INVOLVED IN OCCUPATIONAL FRAMEWORK DEVELOPMENT

NO.	NAME	ORGANISATION
1	Yuslan Bin Yasok	Assistant Principal Director Department of Skills Development
2	Muhd Amin Bin Haron	Assistant Director Department of Skills Development

**LIST OF RESEARCHER TEAMS AND SECRETARIAT FOR THE MANUFACTURE OF
PLASTICS PRODUCTS FRAMEWORK DEVELOPMENT**

NO.	NAME	POSITION/ ORGANISATION
1	Fahiszam Bin Saad	Facilitator/Researcher
2	Chan Sing Choo	Researcher, MPMA
3	Norfadilah Binti Ithnin	Researcher/Secretariat
4	Sujata Albert	Secretariat, MPMA

ANNEX 2: MOSQF LEVEL DESCRIPTORS

**MALAYSIAN OCCUPATIONAL SKILLS QUALIFICATION FRAMEWORK (MOSQF)
LEVEL DESCRIPTOR**

Level	Level Description
8	Achievement at this level reflects the ability to develop an original understanding and extend a sub-area of knowledge or professional practice. It reflects the ability to address problematic situations that involve many complexes, interacting factors through initiating, designing and undertaking research, development or strategic activities. It involves the exercise of broad autonomy, judgement and leadership in sharing responsibility for the development of a field of work or knowledge, or for creating substantial professional or organisational change. It also reflects a critical understanding of relevant theoretical and methodological perspectives and how they affect the field of knowledge or work.
7	Achievement at this level reflects the ability to reformulate and use relevant understanding, methodologies and approaches to address problematic situations that involve many interacting factors. It includes taking responsibility for planning and developing courses of action that initiate or underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding of theoretical and relevant methodological perspectives, and how they affect their sub-area of study or work.
6	Achievement at this level reflects the ability to refine and use relevant understanding, methods and skills to address complex problems that have limited definition. It includes taking responsibility for planning and developing courses of action that are able to underpin substantial change or development, as well as exercising broad autonomy and judgment. It also reflects an understanding of different perspectives, approaches of schools of thought and the theories that underpin them.
5	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address broadly-defined, complex problems. It includes taking responsibility for planning and developing courses of action as well as exercising autonomy and judgment within broad parameters. It also reflects an understanding of different perspectives, approaches or schools of thought and the reasoning behind them.
4	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to address problems that are well defined but complex and non-routine. It includes taking responsibility for overall courses of action as well as exercising autonomy and judgement within fairly broad parameters. It also reflects understanding of different perspective or approaches within a sub-area of study or work.
3	Achievement at this level reflects the ability to identify and use relevant understanding, methods and skills to complete task and address problems that are well defined with a measure of complexity. It includes taking responsibility for initiating and completing tasks and procedures as well as exercising autonomy and judgments within limited parameter. It also reflects an awareness of different perspectives or approaches within a sub-area of study or work.

Level	Level Description
2	Achievement at this level reflects the ability to select and use relevant knowledge, ideas, skills and procedures to complete well-defined tasks and address straightforward problem. It includes taking responsibility for completing tasks and procedures, and exercising autonomy and judgment subject to overall direction or guidance.
1	Achievement at this level reflects the ability to use relevant knowledge, skills and procedures to complete routine and predictable tasks that include responsibility for completing tasks and procedures subject to direction or guidance.

ANNEX 3:
OCCUPATIONAL DESCRIPTIONS (OD)

SECTION	: (C) MANUFACTURING
DIVISION	: (22) MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS
GROUP	: (222) MANUFACTURE OF PLASTICS PRODUCTS

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Pipe Extrusion Technician is responsible to assist supervisors in train the operator, preparing the delivery list, coordinate daily job allocation and compile a daily production report/ checklist according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine routine maintenance
- Safety, health and environment

Skills:

- Monitor production operation
- Assist in machine troubleshooting
- Troubleshoot product quality issue
- Inform machine breakdown
- Compile production report
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Ability to work in a team
- Punctuality
- Have a good communication skill
- Responsive and proactive
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Adhere to hygiene practices
- Ensure disposal of production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Pipe Extrusion Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Supervisory skills
- Supervisor function
- Production operation
- Machine routine maintenance
- Safety, health and environment

Skills:

- Monitor production operation and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Ability to work in a team
- Punctuality
- Have a good communication skill
- Responsive and proactive
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Adhere to hygiene practices
- Ensure disposal of production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Pipe Extrusion Engineer is responsible for the utilisation of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation, coordinate the training and development of the entire manufacturing staff.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence.
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Prepare production planning
- Implement quality management
- Coordinate production rectification
- Prepare overall production resource planning
- Evaluate compliance requirement implementation
- Prepare production requisition.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Ability to work in a team
- Have a good communication skill
- Ability to have leadership skills
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Adhere to hygiene practices
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Pipe Extrusion Manager is responsible for the utilization of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation and coordinates the training and development of the entire manufacturing staff.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence.
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Verify production planning
- Verify quality management implementation
- Verify production rectification
- Evaluate the overall production resource planning
- Prepare overall department compliance requirement
- Prepare department operation and capital expenditure budget.
- Carry out department budget control.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Adhere to hygiene practices
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Compounding Technician is responsible to measure/weigh raw materials, operate mixing machinery, check mixing consistency, carry out compound sampling and adhere to safety, health and environmental rules and regulations.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping
- Safety, health and environment

Skills:

- Measure/ weigh raw materials.
- Operate mixing machinery.
- Check mixing consistency.
- Carry out compound sampling.
- Record mixing activities.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Punctuality
- Responsive and proactive
- Ability to work in a team
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Compounding Supervisor is responsible to supervise compounding machinery and compound sampling activities, assess raw materials measurement, verify compound mixing consistency and adhere to safety, health and environmental rules and regulations.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Departmental objective
- Supervisory skills
- Production operation
- Machine routine maintenance
- Safety, health and environment

Skills:

- Supervise compounding machinery.
- Assess raw materials measurement.
- Verify compound mixing consistency.
- Supervise compound sampling activities.
- Verify compounding activity record.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Punctuality
- Responsive and proactive
- Ability to work in a team
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Compounding Engineer is responsible to implement departmental Standard Operation Procedures (SOP), monitor mixing processes, participates in resin formulation reviews and assists in identifying and solving issues or problems with equipment.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Implement departmental SOP.
- Monitor mixing processes.
- Participates in resin formulation reviews.
- Assist in identifying and solving issues or problems with equipment.
- Troubleshoots system failure.
- Coordinates maintenance activities.
- Assist in preparing technical training schedules.
- Assist in preparing training materials.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Compounding Manager is responsible to monitor Standard Operation Procedures (SOP) implementation, evaluate mixing process and in resin formulation reviews, provide a solution on mixing process and carry out quality improvement.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Monitor SOP implementation.
- Evaluate the mixing process.
- Evaluate in resin formulation reviews.
- Provide solution on mixing process.
- Carry out quality improvement.
- Coordinate quality audit.
- Monitor inventory stock levels.
- Coordinate training activities.
- Prepare production planning.
- Propose mixing process improvement.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Wire & Cable Extrusion Technician is responsible to prepare material, carry out machine operation, carry routine machine maintenance, carry out visual checking according to production SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping

Skills:

- Adhere to occupational safety and health procedure
- Carry out machine operation
- Inform machine breakdown
- Update production report/checklist

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Wire & Cable Extrusion Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory skills
- Machine routine maintenance
- Production operation

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Wire & Cable Extrusion Engineer is responsible for start-up and shut down of machines, coordinate tools and machine requirements, observe continuous operation of automatic machines, to ensure all safety protection and ensure troubleshoot and repair defective equipment according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Prepare wire & cable structure and compound recipe
- Prepare production planning
- Implement quality management
- Coordinate production rectification
- Prepare overall production resource planning
- Evaluate compliance requirement implementation
- Prepare production requisition.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Wire & Cable Extrusion Manager is responsible for the utilization of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation, coordinate the training and development of the entire manufacturing staff. Manage Product Development Planning.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Verify W&C structure & compound recipe
- Verify production planning
- Verify quality management implementation
- Verify production rectification
- Evaluate the overall production resource planning
- Prepare overall department compliance requirement
- Prepare department operation and capital expenditure
- Carry out department budget control.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Lamination & Coating Technician is responsible to assist supervisors in train the operator, preparing the delivery list, coordinate daily job allocation and compile a daily production report/checklist according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine routine maintenance
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production operation
- Assist in machine troubleshooting
- Troubleshoot product quality issue
- Inform machine breakdown
- Compile production report

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Lamination & Coating Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory skills
- Machine routine maintenance
- Production operation
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Lamination & Coating Engineer is responsible for start-up and shut down of machines, coordinate tools and machine requirements, observe continuous operation of automatic machines, to ensure all safety protection and ensure troubleshoot and repair defective equipment according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Prepare production planning
- Implement quality management
- Coordinate production rectification
- Prepare overall production resource planning
- Evaluate compliance requirement implementation
- Prepare production requisition.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Lamination & Coating Manager is responsible for the utilization of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation and coordinates the training and development of the entire manufacturing staff. Manage Product Development Planning.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Verify production planning
- Verify quality management implementation
- Verify production rectification
- Evaluate the overall production resource planning
- Prepare overall department compliance requirement
- Prepare department operation and capital expenditure
- Carry out department budget control.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Thermoforming Technician is responsible to prepare plastics machine line clearance/condition, check mould condition/clean mould, setup plastics mould/die/tool, plastics operation parameter, perform first buy off, mould unloading process, plastics machine shutdown, maintain machine condition and mould condition.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping
- Safety, health and environment

Skills:

- Prepare plastics machine line clearance.
- Check mould condition.
- Set-up plastics thermoforming mould.
- Set-up plastics operation parameter.
- Operate plastics thermoforming machine.
- Perform buy off first product against master sample.
- Perform mould unloading process.
- Perform plastics machine shutdown.
- Maintain machine condition.
- Maintain mould condition.
- Complete thermoforming parameter checklist.
- Adhere to safety, health and environmental rules and regulations.
-

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Ability to work in a team
- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Thermoforming Supervisor is responsible to verify production initial start-up, plastics thermoforming machine setup, maintenance and machine shutdown activities, coordinate measuring equipment calibration, mechanical & electrical equipment/stock and improve production process.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory skills
- Machine routine maintenance
- Production operation
- Safety, health and environment

Skills:

- Check production initial start-up.
- Check plastics thermoforming machine set-up.
- Check plastics thermoforming machine maintenance.
- Check plastics thermoforming machine shutdown activities.
- Coordinate measuring equipment calibration.
- Coordinate mechanical & electrical equipment inventory.
- Coordinate preventive maintenance.
- Coordinate production planning schedule.
- Troubleshoot production process.
- Check thermoforming moulding production related check sheet.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Thermoforming Engineer is responsible to evaluate production equipment, carry out equipment commissioning, improve production efficiency, implement departmental SOP, coordinate preventive maintenance need analysis and schedule, assist in preparing training material, carry out feasibility study and prepare material requisition.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Evaluate production equipment.
- Carry out equipment commissioning.
- Improve production efficiency.
- Implement departmental standard operation procedures (sop).
- Carry out preventive maintenance need analysis.
- Coordinate preventive maintenance schedule.
- Coordinate machine maintenance standard checklist.
- Assist in preparing technical training schedule.
- Assist in preparing training material.
- Carry out a feasibility study.
- Prepare material requisition.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Thermoforming Manager is responsible to evaluate production performance, analyse production performance data and information, carry out quality improvement, monitor inventory stock level, coordinate training activities, prepares production planning and staff's performance appraisal.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Evaluate production performance.
- Analyse production performance data and information.
- Carry out quality improvement.
- Monitor standard operation procedures (sop) implementation.
- Coordinate quality audit.
- Monitor inventory stock level.
- Coordinate training activities.
- Prepare production planning.
- Propose product/process improvement and innovation.
- Prepare staff performance appraisal.
- Adhere to safety, health and environmental rules and regulations.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 1

RESPONSIBILITIES

The Film Printing Operator is responsible to prepare material, carry out machine operation, carry routine machine maintenance, carry out visual checking according to production SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping
- Safety, health and environment

Skills:

- Monitor production operation
- Assist in machine troubleshooting
- Troubleshoot product quality issue
- Inform machine breakdown
- Compile production report
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Ability to work in a team
- Ability to have reporting skills
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Film Printing Line Leader is responsible to assist supervisors in train the operator, preparing the delivery list, coordinate daily job allocation and compile daily production report/checklist according to company SOP.

Knowledge:

- Company policies
- Product specification
- Department objective
- Production operation
- Machine routine maintenance
- Safety, health and environment
- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production operation
- Assist in machine troubleshooting
- Troubleshoot product quality issue
- Inform machine breakdown
- Compile production report

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Responsive and proactive
- Ability to work in a team
- Ability to have reporting skills
- Have a good communication skill
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Film Printing Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory function
- Production operation
- Machine routine maintenance
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 1

RESPONSIBILITIES

The Moulding Printing Operator is responsible to prepare material, carry out machine operation, carry routine machine maintenance, carry out visual checking according to production SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping
- Safety, health and environment

Skills:

- Monitor production operation
- Assist in machine troubleshooting
- Troubleshoot product quality issue
- Inform machine breakdown
- Compile production report
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Ability to work in a team
- Ability to have reporting skills
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Moulding Printing Line Leader is responsible to assist supervisors in train the operator, preparing the delivery list, coordinate daily job allocation and compile daily production report/checklist according to company SOP.

Knowledge:

- Company policies
- Product specification
- Department objective
- Production operation
- Machine routine maintenance
- Safety, health and environment
- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production operation
- Assist in machine troubleshooting
- Troubleshoot product quality issue
- Inform machine breakdown
- Compile production report

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Responsive and proactive
- Ability to work in a team
- Ability to have reporting skills
- Have a good communication skill
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Moulding Printing Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory function
- Production operation
- Machine routine maintenance
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Laminated Plastics Electronics Technician is responsible to prepare material, carry out machine operation, carry routine machine maintenance, carry out visual checking according to production SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping
- Safety, health and environment

Skills:

- Carry out machine operation
- Inform machine breakdown
- Update production report/checklist
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Ability to work in a team
- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Laminated Plastics Electronics Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory skills
- Machine routine maintenance
- Production operation
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Laminated Plastics Electronics Engineer is responsible for start-up and shut down of machines, coordinate tools and machine requirements, observe continuous operation of automatic machines, to ensure all safety protection and ensure troubleshoot and repair defective equipment according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Prepare recipe & product design
- Prepare production planning
- Implement quality management
- Coordinate production rectification
- Prepare overall production resource planning
- Evaluate compliance requirement implementation
- Prepare production requisition.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Laminated Plastics Electronics Manager is responsible for the utilization of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation and coordinates the training and development of the entire manufacturing staff. Manage Product Development Planning.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Verify recipe& product design
- Verify production planning
- Verify quality management implementation
- Verify production rectification
- Evaluate the overall production resource planning
- Prepare overall department compliance requirement
- Prepare department operation and capital expenditure
- Carry out department budget control.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The Printed Plastics Electronics Technician is responsible to prepare material, carry out machine operation, carry routine machine maintenance, carry out visual checking according to production SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Company policies
- Product specification
- Department objective
- Production operation
- Machine housekeeping
- Safety, health and environment

Skills:

- Carry out machine operation
- Inform machine breakdown
- Update production report/checklist
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- Punctuality
- Ability to work in a team
- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The Printed Plastics Electronics Supervisor is responsible to train the subordinates, monitor delivery status, ensure daily job allocation, ensure machine operation, request material, conduct production meeting, monitor and coordinate quality issue with the relevant department / division and prepare a daily production report according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Company policies
- Product specification
- Department objective
- Supervisory skills
- Machine routine maintenance
- Production operation
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Responsive and proactive
- Ability to work in a team
- Punctuality
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The Printed Plastics Electronics Engineer is responsible for start-up and shut down of machines, coordinate tools and machine requirements, observe continuous operation of automatic machines, to ensure all safety protection and ensure troubleshoot and repair defective equipment according to company SOP.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Prepare recipe & product design
- Prepare production planning
- Implement quality management
- Coordinate production rectification
- Prepare overall production resource planning
- Evaluate compliance requirement implementation
- Prepare production requisition.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The Printed Plastics Electronics Manager is responsible for the utilization of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation and coordinates the training and development of the entire manufacturing staff. Manage Product Development Planning.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Verify recipe& product design
- Verify production planning
- Verify quality management implementation
- Verify production rectification
- Evaluate the overall production resource planning
- Prepare overall department compliance requirement
- Prepare department operation and capital expenditure
- Carry out department budget control.

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- Have a good communication skill
- Ability to have leadership skills
- Responsive and proactive
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 2

RESPONSIBILITIES

The 3D Printing Technician is responsible to carry out the printing process and offers recommendations on what products a company can produce via a 3D printer. They typically work in manufacturing or production environment. It involves utilising Computer Aided Design (CAD) information for print products in layers.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Computer Aided Design (CAD) software
- Product specification
- Production operation including printing process
- Machine operation

Skills:

- Create the daily schedules for the printers
- Evaluate customers' design to ensure they are compatible with 3D printing
- Providing input on ways to streamline the printing process, performing printer finishing tasks
- Maintaining the overall production environment such as cleaning or repairing the 3D printers
- Liaise with product management team on product development
- Update production report/ checklist
- Adhere to occupational safety and health procedure

Attributes (Attitude/Safety/Environmental)

- High mechanical aptitude
- Strong attention to detail
- Possess effective communication skill
- Strong organisational abilities
- Ability to work in a team
- Ability to have reporting skills
- Responsive and proactive
- Adhere to safety regulations, production quality standard and environmental regulations
- Dispose production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 3

RESPONSIBILITIES

The 3D Printing Supervisor is responsible to oversee and supervise the printing process and offers recommendations on what products a company can produce via a 3D printer. They typically work in manufacturing or production environment. It involves utilising Computer Aided Design (CAD) information for print products in layers.

Knowledge:

- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Computer Aided Design (CAD) software
- Product specification
- Production operation including printing process
- Supervisory skills
- Machine routine maintenance
- Safety, health and environment

Skills:

- Adhere to occupational safety and health procedure
- Monitor production and quality performance
- Perform machine troubleshooting
- Troubleshoot product quality issue
- Prepare and analyst production report
- Coordinate resource requirement
- Liaise with product management team on product development

Attributes (Attitude/Safety/Environmental)

- Ability to have reporting skills
- High mechanical aptitude
- Strong attention to detail
- Effective communication skill
- Strong organisational abilities
- Ability to work in a team
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure disposal production waste according to waste management procedures

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 4

RESPONSIBILITIES

The 3D Printing Assistant Engineer is responsible for start-up and shut down of machines, coordinate tools and machine requirements, observe continuous operation of automatic machines, to ensure all safety protection and ensure troubleshoot and repair defective equipment according to company SOP.

Knowledge:

- Computer Aided Design (CAD) software
- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Compliance management
- Quality management
- Requisition, documentation and procedure.
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Adhere to occupational safety and health procedure
- Prepare recipe & product design
- Prepare production planning
- Implement quality management
- Coordinate production rectification
- Prepare overall production resource planning
- Evaluate compliance requirement implementation
- Prepare production requisition.

Attributes (Attitude/Safety/Environmental)

- High mechanical aptitude
- Strong attention to detail
- Effective communication skill
- Strong organisational abilities
- Ability to have leadership skills
- Responsive and proactive
- Ability to work in a team
- Adhere to safety regulations, production quality standard and environmental regulations
- Ensure compliance of production operation in accordance with statutory and regulatory requirement

MSIC GROUP : 222
AREA : MANUFACTURE OF PLASTICS PRODUCTS
LEVEL : 5

RESPONSIBILITIES

The 3D Printing Engineer is responsible for the utilization of all available resources, assists in the creation and execution of the business goals of the department, manages the production team, maintaining a safe workplace, provide technical assistance to other functional groups within the organisation, coordinate the training and development of the entire manufacturing staff. Manage Product Development Planning.

Knowledge:

- Computer Aided Design (CAD) software
- Instruction and working procedure
- Company safety, rules & regulations
- Safety, health and environment
- Production management
- Financial management
- Human resources management
- Compliance management
- Quality management
- Budget preparation
- Administration operation
- Basic project management
- Quality, manufacturing and business excellence

Skills:

- Plan daily production runs for printers
- Analyse production area of improvements
- Provide input for automation to enable scaling of the service
- Clean and sort 3D printed parts
- Perform finishing processes including polishing, dyeing, air, sand blasting and etc.
- Conduct daily manual checks of our customer's 3D renderings
- Establish and maintain relationship with the customers
- Adhere to occupational safety and health procedure
- Evaluate the overall production resource planning
- Prepare overall department compliance requirement
- Prepare department operation and capital expenditure
- Carry out department budget control.

Attributes (Attitude/Safety/Environmental)

- High mechanical aptitude
- Strong attention to detail
- Effective communication skill
- Strong organisational abilities

- Strong analytical and problem solving
- Ability to have leadership skills
- Crave being creative, resourceful, proactive and innovative
- Ability to work in a team
- Adhere to hygiene practice
- Strong interpersonal skills with good attention to details
- Adhere to safety regulations, production quality standard and environmental regulations