

# INDUSTRIAL TRAINING REPORT



UNIVERSITI  
TEKNOLOGI  
MARA



## DIPLOMA OF CHEMICAL ENGINEERING WITH HONOURS UNIVERSITI TEKNOLOGI MARA (UiTM) PASIR GUDANG 2021

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## ACKNOWLEDGEMENT

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I wish to express my deepest gratitude towards my industrial training coordinator Miss Hidayu and also for her guidance throughout my industrial training weeks. Furthermore, I would like to give my appreciation to the lecturer of UiTM Pasir Gudang that has involved in evaluating my performance, Sir Haikal.

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# CHAPTER 1

## INTRODUCTION TO PRACTICAL TRAINING

### 1.0 Introduction

This internship program is a mandatory course that must be done by all students of the Chemical Engineering before finishing diploma of Faculty of the Chemical Engineering, EH110. To complete this course, undertaking internship requirement must be fulfilled to enable graduating from the university. Industrial training helps students to gain work experiences that are in relation to the course taken in its' professional development prior to graduation for the diploma taken. The internship consists of 17-week duration allocated at any chosen job offered for training by the students themselves. There is no limitation inflicted towards all students, whether they may work in government agencies or private organizations.

I, Muhammad Arif Danial bin Shaiful Anuar ( 2018223952 ) has started to work in Elite Advanced Material SDN. BHD. as an intern under Mr. Hisyam as the supervisor allocated in EAM starting from the 6<sup>th</sup> September 2021 until 7<sup>th</sup> January 2022.

### 1.1 Objectives of Industrial Training

The objectives of the industrial training are as listed:

- I. To attain the requirement for the students to graduate from this course
- II. Apply theories learnt in classroom in working conditions
- III. Improve communication and management skills
- IV. Improve students' confidence after graduation
- V. Improve both soft and hard skills
- VI. Acquiring work experiences

## CHAPTER 2

### INTRODUCTION OF COMPANY



Figure 1. Elite Advanced Material SDN. BHD logo.

#### 2.0 Company's Background

Elite Advanced Materials (M) Sdn. Bhd. was established in 2016 as Malaysia's 1st manufacturer of high purity solvents selling to high value manufacturers such as pharmaceutical, medical devices, F&B and diagnostics. Leading with their proprietary purification process and quality management system, we only deliver premium quality products.

EAM is also strived to assist our clients in building a sustainable business through tailored delivery methods, customised blends and partaking in new products development. The driving force behind the company is the passion to delivery products of the highest quality to their clients.

their people are committed to deliver only the simplest and most effective solutions to meet our clients' needs. We grow only when their clients grow.



## 2.1 Vision & Mission

### VISION

We aim to redefine industry by delivering sustainable products and services through creation and technology.

### MISSION

We value in trust and integrity. Our company believes in using knowledge and technological advancement to delivery results through working with our customers and suppliers.

## 2.2 Organizational chart

## 2.2 General Rules & Regulations

Required to comply with any general rules, procedures, regulations, and agreements currently in force on or that which may hereafter be introduced / made by the company covering terms and conditions of service, discipline, misconduct, security and any such matters which affect oneself present and future employment/internship with the company.

## 2.3 Confidentiality

Under no circumstances, divulge to any person or organization outside of the company a secret or information in connection with the business, operation and activities of the company which may acquire during or incidental to employment/internship in the company.

## 2.4 Conduct & Discipline

Expected to observe discipline and conduct oneself in the manner that will always project a good image of the company. Acts of misconduct which are likely to result in the termination of service without notice include dishonesty, absent without leave or permission, persistent lateness, and such others as may bring the company or the company's employees into disrepute.





Personal protection measures, such as personal protective equipment

Never eat, drink or smoke during handling the chemical. Ensure that there is adequate ventilation, especially in confined areas. Wash hands before breaks and at the end of workday.

**Eye/ face protection**

Protective eyeglasses or chemical safety goggles is required during handling. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin protection**

Wear gloves during handling the chemical. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

**Body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory protection**

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

## 2.5 Job scopes of Industrial Training

Listed below are the scopes that I was exposed throughout my internship that are in relation to my field of study, Chemical Engineering. The exposures given on these scopes are in the form of simple batch process and managing other chemicals. The scopes are:

- Production of gum rosin
- Production of sanitizers
- Weighing chemicals such as IPA (isopropyl alcohol), glycerol
- Management skill

EAM Sdn. Bhd. has its own fixed hours. Below is the schedule on working hours:

	<b>EAM Sdn. Bhd. offices</b>
<b>Working day</b>	Monday to Friday
<b>Working hour</b>	830am to 6pm

## 2.6 Industrial Training Schedule

No.	Scope	Start Date	Finish Date	Training Period
1	<ul style="list-style-type: none"><li>- Introduction to management and organization</li><li>- Briefing on roles and responsibilities</li><li>- Briefing on rules and regulations</li><li>- Touring around the working space</li></ul>	6.09.2021	10.09.2021	1 weeks
2	<ul style="list-style-type: none"><li>- Production of gum rosin</li><li>- Learning how batch reactor works</li></ul>	8.11.2021	18.11.2021	2 weeks
3	<ul style="list-style-type: none"><li>- Filling sanitizer into the bottle</li><li>- Carton sorting</li><li>- Labelling</li><li>- Stamping</li><li>- Weighing glycerol and hydrogen peroxide</li><li>- Mixing sanitizers using mixer</li></ul>	14.09.2021	7.01.2021	14 weeks

## CHAPTER 3

### INDUSTRIAL TRAINING ACTIVITIES

#### 3.0 Process Flow

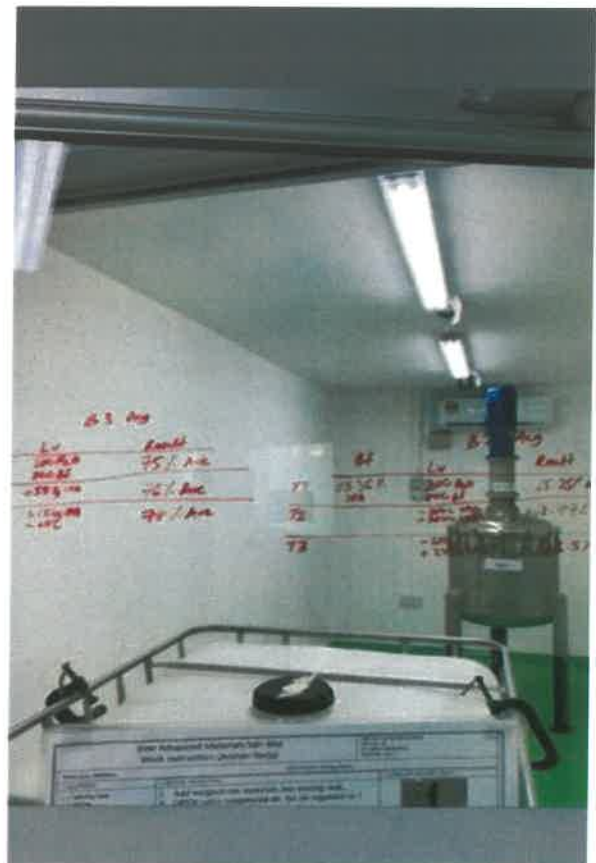
##### Production of sanitizers

- There are basically three types of sanitizers which is hand sanitizers, surface disinfectant and food safe disinfectant.



	Hand Sanitizer		Surface Disinfectant		Food Safe Disinfectant	
Target	Hand		General Surfaces		Food Contact Surfaces	
	Liquid Handrub	Gel Handrub	Disinfectant Spray	Surface Cleaning & Disinfectant	PAWA	PAWA70
Alcohol Used	USP Grade Isopropyl Alcohol		Isopropyl Alcohol		Food Safe Isopropyl Alcohol	
Alcohol Conc.	75%	70%	70%	75%	99%	70%

- Responsible in weighing all the ingredients. Such as glycerol, hydrogen peroxide, IPA ( isoprophylalcohol ) and RO water.
-



- After that, we have to mix all the ingredients using a mixer. Every each of the ingredients that we put must be check from top and bottom of the container for quality check.
- Wait for the sample to pass before proceed and continue to mix for an hour and repeat the same step.



- 1 batch of sanitizers production is equal to 1000 kg per container. We have to calculate and mix the right value to avoid any mistake. That's why this process must be supervised by supervisor.
- Must also wear the right PPE attire such as glove, respiratory mask, hair protector and lab coat.



## Filling process

- There are several size of bottle that are provided by this company.

Packaging Type	Spray bottle	Flip cap bottle	Aerosol can	Plastic bottle or pail	Plastic bottle or pail	Spray bottle
	Dispenser bottle	Dispenser bottle	-	-	Plastic drum	Plastic bottle or pail
	Plastic bottle or pail	Plastic bottle or pail	-	-	-	Plastic drum
Packaging Size	100 mL	100 mL	400 mL	2.5 L	5.0 L	500 mL
	500 mL	500 mL		5.0 L	25 L	5.0 L
	1.0 L	1.0 L		25 L	200 L	25 L
	2.5 L	2.5 L				200 L
	5.0 L	5.0 L				

- Filling process must be done carefully to avoid any accidents such as spilling or the batch that we manufactured insufficient.



- This process also must be wearing the right ppe.



## Labelling and packaging process

- Wipe every bottle with a clean towel after done filling.
- Put every bottle in labelling machine using the right sticker.
- Make sure the sticker already had the right lot numeber before processing.
- Put every bottle in the right size of carton and wait for the carton to be checked by the QC deparment.
- Tape the carton that already passed and product ready to move.





### 3.1 Brief daily/weekly activity

#### **Week 1**

On the first day, I met up with the person in human resources, Pn Balkish for setting my fingerprint for attendance and also introducing me to the supervisor, Mr Hisyam. Then, I met up with him for a briefing on the company's background, job scopes as well as on the rules and regulations that must be followed. Getting a quick touring around the workplace to familiarize with the working environment. Getting to know some of the working colleagues and introducing myself to them.

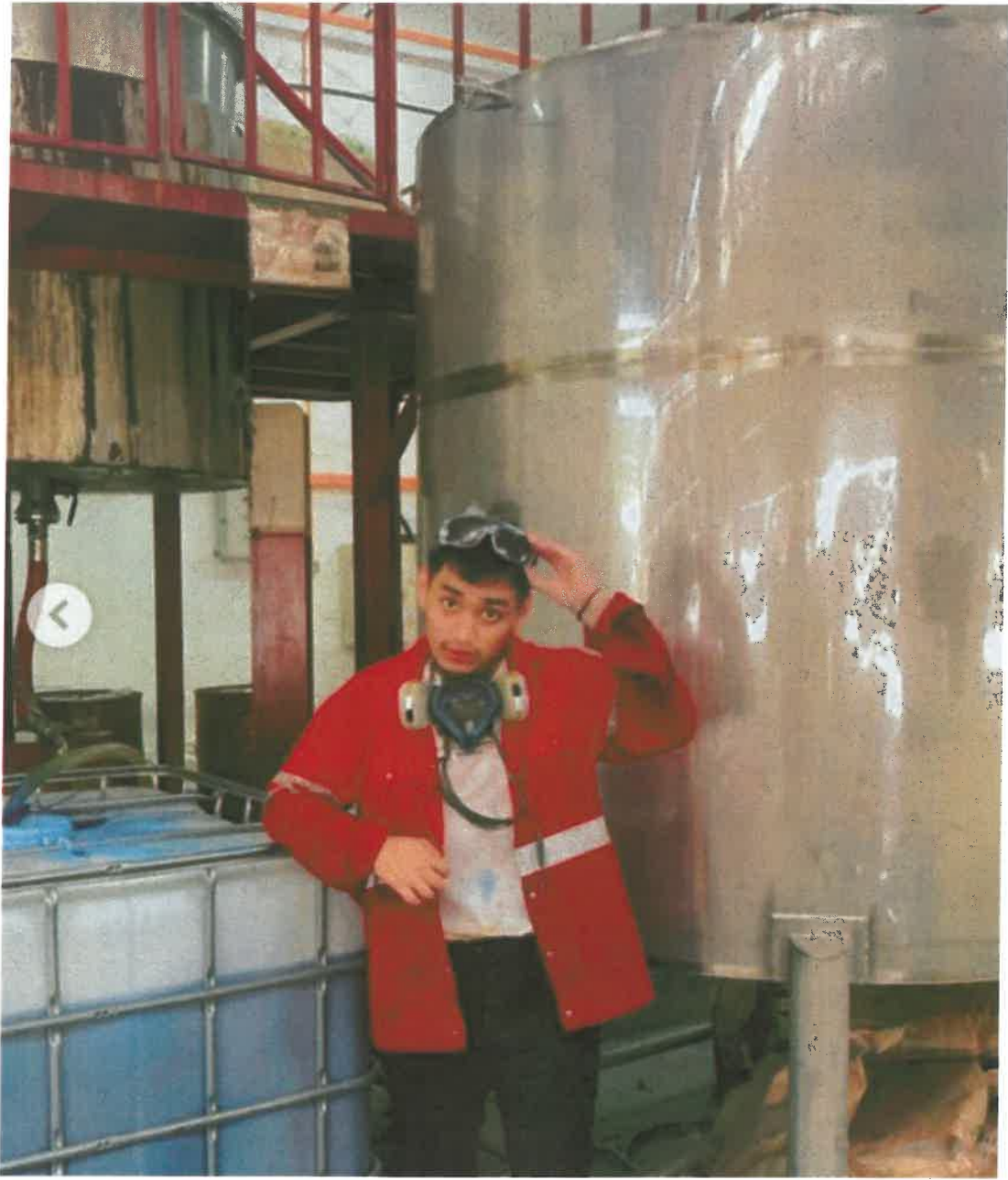


## Week 9 – Week 10

On this two weeks period, I received a project from my supervisor, Mr Hisyam for me and my two other colleague which Hakimi and Ezwan as operator for this project. We have to manufacture 20 ibc ( 1 ibc – 1000kg per container ) of gum rosin during this 2 weeks of period. If im not mistaken , we have to send this product outside from this country. So , we have to manufacture this product very carefully. So , basically the ingredients for this production of gum rosin are :

- Gum rosin ( in solid form )
- IPA ( isoprophyl alcohol )
- Sodium nitrate
- Water
- Blue pigment

So , firstly we have to breakdown gum rosin in solid form into tiny pieces using a steel and mix it with certain volume of water using a stirrer. Basically , we use tiny pieces of gum rosin is because it will make gum rosin easily to dissolve in the water. Then, after we mix it until the gum rosin is completely dissolve in the water, we have to suck in the solution using a pump straight into the reactor and mix it well. While the solution is mix, we have to prepare certain volume of IPA (isoprophylalcohol) and suck in also into the reactor. After like 30 minutes of mixing, in the meantime we have to weight a certain amount of sodium nitrate which the function of this chemical is to prevent the solution become bubbly. Next, we have to let it mix for like 1 hour before we flow out the solution in the container. In this production, for one batch of gum rosin we will get 1 ibc which is we have to repeat this process over and over until 20 ibc of gum rosin is finish. Lastly, after we wait for 1 hour, we will flow out the solution into the container and put the blue pigment into the solution. Like always, after the solution is done, sample will be taken from top and bottom of the container for quality checked.



## Week 2 – Week 14

- During this 14 weeks, the same routine of manufacturing sanitizer which includes filling, labelling and also packaging is basically my daily routine to be honest. From weighing the ingredients such as glycerol and hydrogen peroxide, I personally have to multitask doing everything I can in order to finished the product in the right time and think critically what I must do to help the flow of production during my internship become more smooth. I believe, through my internship I learn the skill of managing that I lack. Moreover, doing this repetitive work require a lot of focus and dedication. During my internship, I make a lot of mistake such as stamping the wrong lot number on the sticker, spilling and many more. But the more important things here is how we learn from all those mistake and personally from my point of view, this help me in what im lack of as a person. During all those weeks, actually I help from the bottom of the production to the last step of production. Me and my three other colleague including the head of department, Mr. Amir Hisyam must communicate well and work together as a team for this to work. At first, during my first and second of week of internship, Mr. Amir Hisyam helps me and guide one by one from handling the machine, the pump and even the steps on manufacturing sanitizer.



- Last two weeks of my internship is quite challenging for me where the order that we received is quite a lot and in order to finished the order all worker in other department join in manufacturing sanitizer which include filling, labelling and also packaging. Because of that we were able to finished all the order on the right time. This is what we call a real life work pressure and how we all able to work together with the right way on handling the pressure. We did overtime for a few days just to finished this order. The best moment is when the hardwork that we put is worth it when our boss decided to treat everyone to company dinner which indirectly helps tighten the bond between the workers



## CHAPTER 4

### CONCLUSION AND RECOMMENDATIONS

#### 4.1 Recommendation

Throughout my internship duration working under Elite Advanced Material Sdn Bhd, lists of recommendation constructed based on my observations are as follows:

- Always asking more questions regarding any task given, especially on the lists of data that need to be gathered to abstain from redoing the process all over again.
- Being extra aware of surrounding because theres always a risk of accident that can occur.
- Every each of steps given is necessary even its doesnt give a direct impact to the product.
- Occasionally check up on group members of the research project on their work updates and progresses to ensure all parts are given on time to avoid any last minute rush before the due dates of journal submission.
- Asking for a proper guideline from supervisors may really help a lot in such manner to know exactly on what to do and into being much more organized into completing the task given.
- Making sure the source of information that will be used for the research is from trusted sources so that the project done would be accurate and success.

## 4.2 Conclusion

I have gained numerous knowledge, experiences and skills that may be useful in the future to face challenges in the working environment after 17 weeks spent at the Chemical Engineering department under Elite Advanced Material Sdn Bhd. Through the practical training, I have gained an exposure to work coordination in an environment which is conducive coupled with friendly staff and colleagues that always there to help.

Along my training period, I have recognized that observing and asking questions are the main elements to find out the root cause of a problem. Not to mention, this internship has helped me to learn independently, disciplined myself, being considerate and patient, self-trust, taking initiative and ability to work on a task. To be working here with other different people from the chemical engineering department teaches me uncountable soft and hard skills that cannot be learned in the classroom.

To conclude, my internship has been excellent for various reasons and lastly, I got the opportunity to expose myself in the working environment related to my course, chemical engineering.



## REFERENCES

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