INDUSTRIAL TRAINING FINAL REPORT

SESSION: March 2022 – August 2022

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Duration (Date)	: 24 weeks (21st February 2022 – 4th August 2022)
Lecturer Evaluation	: Madam Nor Ain binti Abu Samah

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ACKNOWLEDGEMENT

Alhamdulillah, thanks to Allah, I was able to finish my Industrial Training (CHE 354) in my last semester of the Diploma in Chemical Engineering program. I am really appreciative to have completed my internship program at UPM Raflatac Sdn Bhd because I have many lovely memories and knowledge from the experience.

My supervisor, Ms. Eve Ng, Quality Development & Continuous Improvement Manager, deserves a special word of thanks for providing me with the chance to finish my internship at UPM Raflatac Sdn Bhd. I want to express my gratitude to her for all of her help during my internship with this organization and in finishing this report. She gave me counsel, encouragement, concern, and support.

I also want to thank all of my coworkers and the QA Team for training me and guiding me from having little information to being absolutely certain. They are all quite lovely people, and I particularly want to meet them again. I consider myself really fortunate to work with them. They are all incredibly kind individuals who are always eager to instruct me and answer my inquiries. This experience will stay on in my thoughts and heart forever as a memorable one.

ABSTRACT

This industrial training report is for Anis Nazihah binti Mat Nor, who will complete a 6-month, 24-week training program before finishing her diploma programs. Beginning industrial training on February 21, 2022, and lasting through August 4, 2022, at UPM Raflatac Pasir Gudang, under the supervision of Ms. Eve Ng (Industrial Training Supervisor).

The goal of this program is to finish the required coursework so in order to get the diploma and receive the university degree. Prior to graduating, the training refers to job experience that is important for professional development. This report defines the terms "industrial training" and describes the program's objectives in the first chapter. The objectives of the industrial training report and the industrial report are described in depth in this section. The company as well as its departments are described in the second chapter of the report.

The obligations and numerous tasks that were completed each week during the industrial training activities are summarized in the third chapter. The details of the tasks or experiences are covered in the following chapter. Students gain valuable testing experience in terms of label product quality thanks to this training. For instance, testing for curls, printing, lifting labels, and many others. Last but not least, in order to preserve the quality of the products, trainees had the chance to learn more about defects and how to identify their root causes.

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CHAPTER 1 INTRODUCTION OF INDUSTRIAL TRAINING

1.1 Overview

Industrial Training is a compulsory requirement for students in certain programs at all levels of higher education in Institutions of Higher Learning (IHL). To increase the level of graduates able to work, an industrial training program was introduced to strengthen the competencies required. Industrial Training courses give students learning opportunities in the world of work to receive practical experience in order to improve the reliability of the market.

Industrial Training (IT) refers to exposing students to the real-life experiences of the engineering works and to get them involved in Chemical Engineering projects before graduation. One of the requirements for the award of Diploma in Chemical Engineering is that the student must complete at least twenty-four (24) weeks with 12 credit hours of Industrial Training within semester six (6) or after passing all the courses taken from semester 1 to semester 5. The technical and non-technical outcomes of the course may be assessed and evaluated through this industrial training.

1.2 Objective of Industrial Training

The core objective of industrial training (IT) is to provide students with learning opportunities in the workplace so they can gain real-world experience and increase market trustworthiness. The industrial training aids in producing chemical engineering technician graduates with excellent technical skill and soft skill competency when it comes to preparing the students as engineering technicians. The other goals are:

- Acquiring technical skills
- Acquiring crucial background knowledge
- Improving communication abilities (soft skills)
- Establishing a Contacts Network

1.3 Industrial Training Placement

1.3.1 Industrial Schedule

Table 1.1: Industrial Schedule

Normal Working Hours	**Monday - Thursday** ➢ 8 hours 30 minutes **Friday** ➢ 7 hours 30 minutes
Day of Working	5 days a week
Work In	8:30 am
Break Hour	**Monday - Thursday** ➢ 12:30pm to 1:30pm ➢ 3:30pm to 4:00pm **Friday** ➢ 12:00pm to 1:00pm ➢ 3:00pm to 3:30pm
Work Out	**Monday - Thursday** ➢ 6:00pm **Friday** ➢ 5:00pm

1.3.2 Company Supervisor Information

Figure 1.1: Industry Supervisor

Table 1 2: Industry Supervisor Information

INDUSTRY SUPERVISOR INFORMATION	
Name:	Eve Ng
Position:	Manager
Department:	Quality Development & Continuous Improvement
Phone No:	
Email:	

CHAPTER 2

CHAPTER 2 COMPANY PROFILE

2.1 Company Background

UPM Raflatac is leading in sustainable labelling through their innovative self-adhesive label materials and services. They offer high-quality paper and film label stock for branding and promotion, informational labels, and labels with functionality. It means that they help brands, designers and printers from around the world find labels that bring their packaging designs to life and drive brand value (Figure 2.3). UPM Raflatac operates a global network of 10 factories, 27 distribution terminals and sales offices. The company employs around 3,000 people around the world and made sales of EUR 1.7 billion (USD 1.9 billion) in 2021. UPM Raflatac is part of UPM. Figure 2.2 shows UPM Raflatac's global platform, it is seen that there are a lot of factories and terminals in certain countries. UPM Raflatac Sdn Bhd (Figure 2.1) is one of the factories in Asia. This factory was located at Pasir Gudang in Johor where I finished my 24 weeks of industrial training. It produces self-adhesive label stock and employs approximately 173 people.

Figure 2.1: UPM Raflatac Pasir Gudang

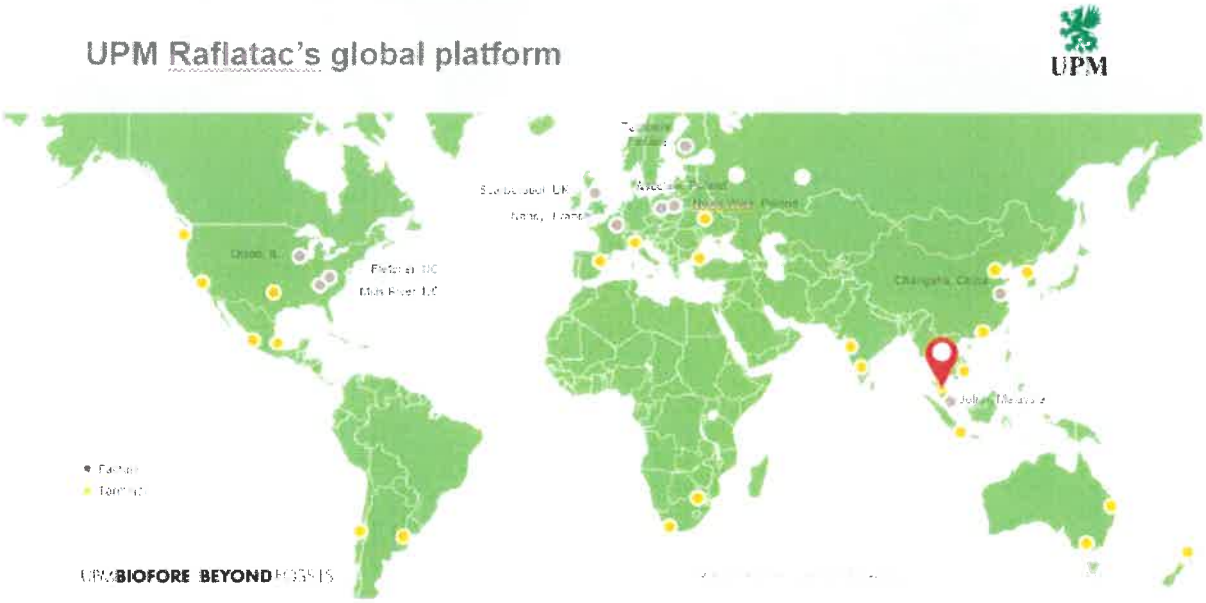


Figure 2.2: UPM Raflatac's global platform

Figure 2.3: High quality paper & film Label stock (products).

2.2 Company History

It is a story of thousands of people around the world working together to create new label solutions for brands and businesses, searching out new ways to help them grow. Company's story is also the story of one man, a young chemist in Tampere, Finland, who set the stage for UPM Raflatac's growth by constantly experimenting with label materials. That quality - of challenging the status quo with new approaches - is what has fueled their growth and made them what they are today. In just four decades, they have become one of the world's leading manufacturers of pressure-sensitive labels.

The 1970s - Capturing the vision of a young chemist

What if an alternative to solvent-based adhesives existed? asked Juhani Strömberg, a chemist at Raf. Haarla company. In the early 1970s, Strömberg began running trials with adhesives to find out whether he could create an alternative to the solvent-based products that were prevalent in the label industry at the time. Strömberg's work resulted in the development of the water-based permanent adhesive RP51 and other revolutionary innovations that raised the company's profile to visionaries in the label industry. His work sparked their enthusiasm for sustainable production approaches and labelling solutions. As part of UPM, the Biofore company, our commitment to sustainability continues to this day.

1976 - Leveraging our proprietary adhesive technology

In 1976, Raf. Haarla merged with United Paper Mills to form Raflatac. The end of the decade saw Raflatac produce label stock at an industrial scale and export them to Western Europe. Thanks to the resources of a major forest industry company, state of the art adhesive technology and successful business acquisitions, the following decades saw Raflatac grow rapidly into the position it occupies today - one of the leading manufacturers of paper and film laminates.

1996 – When Raflatac became part of UPM

In 1996, Raflatac became part of UPM - one of the world's leading forest industry companies. UPM leads the forest-based bioindustry into a sustainable, innovation-driven, and exciting future across six business areas. They create renewable and responsible solutions that replace fossil-based materials by making the most of residues and side streams.

Today - Creating labels for the whole world

As UPM Raflatac, they create high-performing, visually compelling label materials that work towards labelling a smarter future beyond fossils through sustainable and innovative products and solutions. A truly global player, they are expanding their geographical scope and investment in new production facilities, growing new, emerging markets such as South America and Asia

2.3 Vision and Mission

- **Vision:** "We create a Future Beyond Fossils"
- **Mission:** Innovating futureproof labelling solutions that bring value to our customers and brand owners complemented by our world class service and superior end-use insight.

2.4 Organization Chart

- Quality Department – UPM Raflatac Sdn Bhd (APAC Factories)

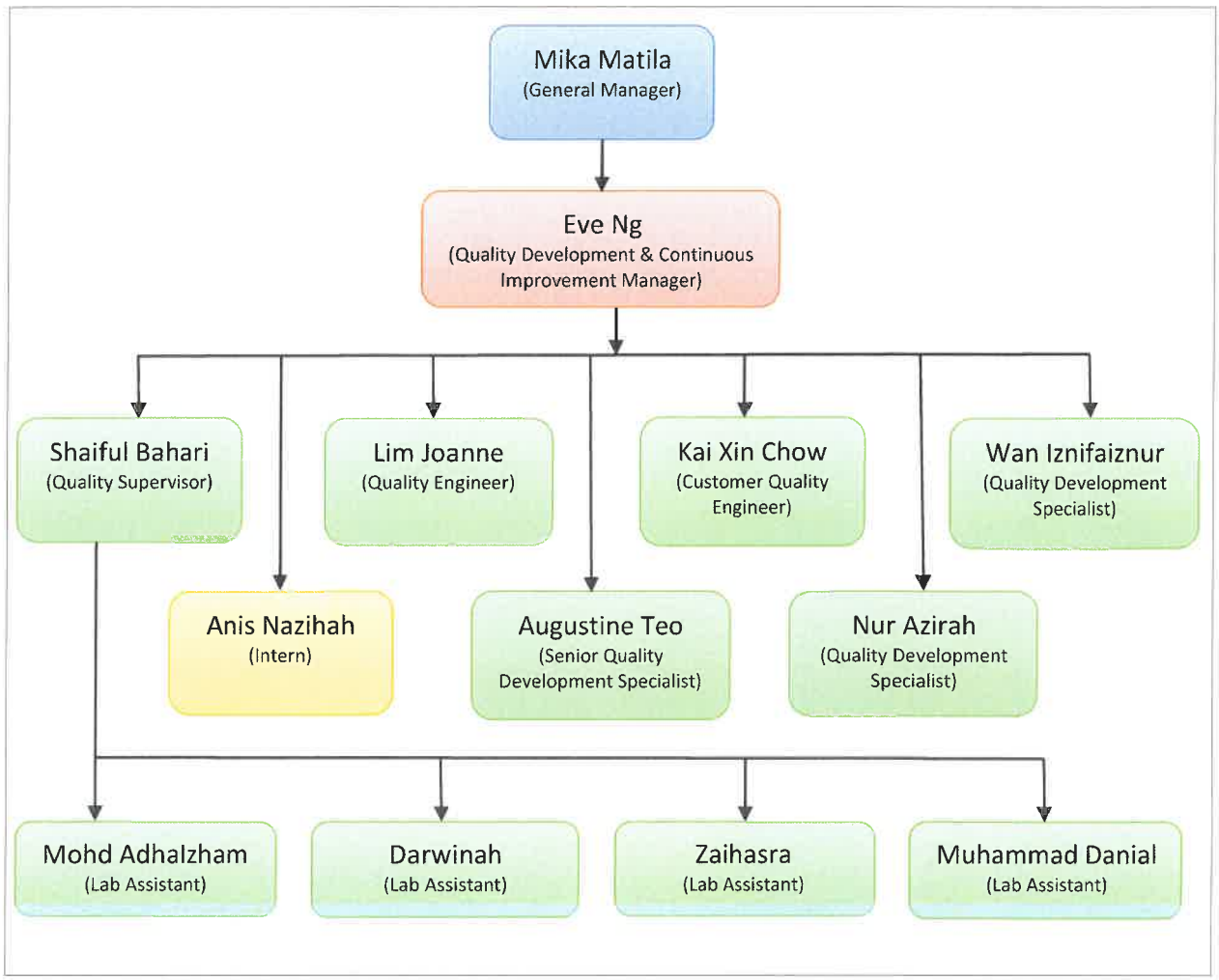


Figure 2.4: Organization Chart

2.5 Main Product

The main product of UPM Raflatac is self-adhesive label stock. Figure 2.5 shows the structure of self-adhesive labels. The top layer is face material and adhesive while the bottom layer is backing material/liner and silicone. The process involved is the lamination process where the top layer meets up with the bottom layer. The top layer (face) is where the customer prints their brand on it. There are many types of face material used in the production such as coated paper, uncoated paper, clear film, white film and metallize. In UPM Raflatac Sdn Bhd, only two types of adhesives are available: water-based adhesive and hot melt adhesive. In fact, hot melt adhesive is stronger than water-based adhesive. These adhesives are self-made by following UPM Raflatac's recipe. The purpose of silicone on the backing material is to make sure the top layer is easily removed.

The products have many sizes and lengths based on customer requirements. They have big sizes called "Jumbo" (Figure 2.7) and small sizes called "Coil" (Figure 2.6). The maximum length for 1 Jumbo can reach approximately 15,000m. Mostly, their customers are from distribution terminals such as Indonesia, Thailand, Vietnam, New Zealand, Australia or any local company in Malaysia. Customers buy the products to print out any customer's brand logo for labelling (Figure 2.3).

Figure 2.5: Structure of Label stock

Figure 2.6: Coil (Label stock)

Figure 2.7: Jumbo (Label stock) at warehouse

CHAPTER 3

CHAPTER 3 OVERVIEW OF THE TRAINING

3.1 Introduction

During 24 weeks of the training, a variety of jobs are provided by UPM Raflatac company including case study about 'Diamond Shape' creases at outer layer, WIS project, Printing Test, Valmet Project and Curl Testing. As I was in the Quality Department, it is our responsibility to maintain the good quality of the customer. However, there are some defects of the products that were accidentally released. It causes customers to complain to the quality department and want a refund. Before any refund transaction occurs, we as a quality team need to investigate by doing some testing to validate the root cause of the defects that customers received. My duty as an intern will give some support in testing, case study and collecting data.

3.2 Summary of the training and experience gained

Task 1: Case Study (Diamond Shape – Creasing outer layer)

Based on the data customers complained about in 2021 & 2022, "Diamond shape creases at outer layer" is the top defect. The Quality (QA) teams still have no idea what the root cause of this defect is. If there is no action taken, the percentages of the waste will increase and can cause losses to the company. Case studies about this defect have been conducted to find the root cause of this defect. There are a lot of questions. Is it because of uneven moisture inside the product? Or is it because of tight packaging that causes creases at the outer layer? This will be answered when the case study is conducted. In this case study, my duty is to collect the data and present it to the quality manager about my findings. Then, they will take action about this case.

Figure 3.1: Diamond shape creases at the outer layer

Task 2: Collecting Data for Effectiveness WIS

Web Inspection System or also known as (WIS) is a camera system installed at coating machine (CM1) to help on defect detection. WIS can detect small or large defects for example creasing, adhesive-miscoating, adhesive lump, curtain open, contamination, insects, torn paper and many more during the process. However, this WIS system has not yet been accurate, and a lot of problems have occurred. It is because sometimes WIS can detect the smallest defect which is not considered defects and we will ignore it. Also, the classifier is still not 100% accurate, for example the image taken by WIS is actually adhesive-miscoating but WIS classifies it as a creases defect. Thus, WIS has a lot of problems and must be always monitored before proceeding to the next project. My duty is to collect the data of the defects found in WIS and defects found by the operator after salvaging. It is to find the effectiveness of WIS in terms of types of defects similarity (WIS and after salvaged) and defect's location.

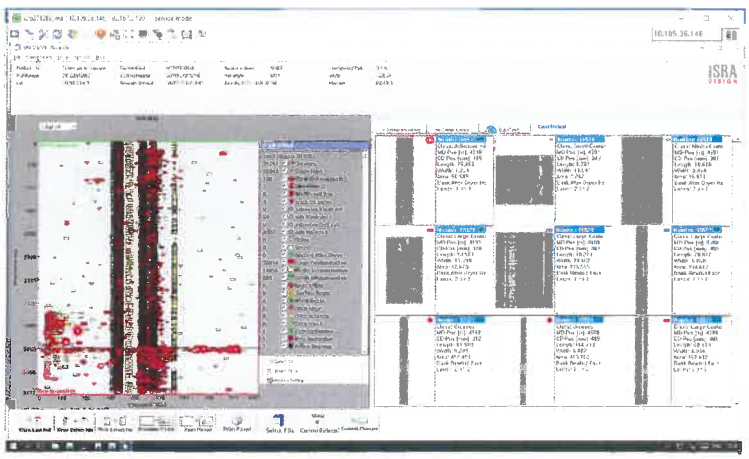


Figure 3.2: Web Inspection System

Task 3: Printing Test

The printing test is one of the common tests in this company. The purpose of this test is to test the product sample's printability. If the product did not achieve printability required, the product cannot be acceptable to sell to the customers. Sometimes, we also received complaints from customers about poor printing. We have to validate that claim by doing some printing tests. These are some of the root causes of poor printing. For example, adhesive bubbles, adhesive fisheyes, diamond shape on face material especially for products metallized. My duty is to do the printing test process using the printing machine.

Figure 3.3: Printing machine

Task 4: Valmet Project

Valmet is a new machine installed at coating machine (CM2). It will spray some water to the products during production to maintain the moisture. Uneven moisture can cause curling on the products. If the products have less moisture, it will curl to the face but if the products have more moisture, it will curl to the backing. Curling can cause the sample to be easily detached and it is not suitable as a label product. The objective of this Valmet project is to evaluate the effectiveness of the Valmet machine. During this project, there are 30 trial Jumbo with different speeds. My duty in this project is collecting data of moisture (before and after the oven) by weighting the samples and observing the level of curl (CD Curl and MD Curl).

Figure 3.4: Valmet machine

Figure 3.5: Valmet system

Task 5: Curl Testing After Aging

The objective of this curling test is to find the level of curl after pressing under 1 kg weight. The samples used for this test are all complained by the customers. So, we need to validate whether it is our side's fault or not. Also, we need to observe the curl direction which is curl to face or backing material. My duty is to perform the curl testing and submit the report before and after chamber to the manager.

Figure 3.6: Curl testing

Task 6: Label lifting Test

The purpose of this test is to validate whether the product complained by a customer has problems with label lifting or not. The root cause of label lifting might be low coat weight, wrong adhesive mixed (recipe), pressure applied during label dispensing and bottle surface contamination. The testing will be conducted by using an engine oil bottle as it is the customer's main product. As it is for engine oil bottles, hot melt adhesive is more suitable and stronger than water-based adhesive. Thus, my duty is to perform this testing for samples complained by the customers.

Figure 3.7: Label lifting test

Task 7: Indirect duties

Indirect tasks like photocopying, printing, laminating, delivering samples using DHL Express, FTIR analysis, Check diamond shape on samples using light microscope, cut samples into A4 size, update the latest MSDS, key in data for Longterm measurements, quality check for samples complained by customers, do filing for TCS claim and quality defect samples and creating Rafmove Boards were also completed throughout training.

The details of the task will be explained in Chapter 4

3.2.1 Weekly Activity

- **Week 1:** Briefing with Industry Supervisor about quality introduction & defects training.
- **Week 2:** WIS Training with Quality Engineer, Monitoring WIS & Learned how to change QA Status for defective jumbo by WIS.
- **Week 3:** Label lifting testing and collecting data for WIS.
- **Week 4:** Label lifting testing, Online training WIS by Trainer from China.
- **Week 5:** Design for Rafmove board for finishing department and update the latest MSDS.
- **Week 6:** Starting case study for "Diamond Shape Creases", collecting sample after salvaged (WIS).
- **Week 7:** Design for Rafmove board for coating department, update MSDS master list in excel file, learned how to use FTIR for analysis.

- **Week 8:** Label lifting testing for product code FCG/RP37/GZI, monitoring WIS for defective jumbo and collecting sample after salvaged (WIS).

- **Week 9:** WIS Training by Supplier ISRA from Germany and do summary WIS and pareto chart for the findings.

- **Week 10:** Update the latest MSDS document in each of department, WIS Training by Supplier ISRA from Germany, Key in data Longterm measurements.

- **Week 11:** Unpaid leave (Hari Raya Aidilfitri).

- **Week 12:** Monitoring WIS, change QA Status for defective jumbo by WIS, collecting sample after salvaged (WIS).

- **Week 13:** Monitoring WIS, change QA Status for defective jumbo by WIS and collecting sample after salvaged (WIS).

- **Week 14:** Key in data for 2Q Car (waste), learned the procedure of printing test and Valmet project (testing).

- **Week 15:** Printing test, prepare 13 set of samples for delivery using courier DHL Express and monitoring WIS.

- **Week 16:** Do Summary WIS, collecting sample after salvaged (WIS) and printing test.

- **Week 17:** Key in data for 2Q car (waste) key in data for Longterm measurements and curl testing.

- **Week 18:** Data analysis for Terminal IR (2022), do FTIR analysis, Change QA status for defective jumbo by WIS.

- **Week 19:** Printing Test, Data analysis for effectiveness monitoring MA IR, Terminal IR & 2Q and sizing testing.

- **Week 20:** Curl testing, key in data for Longterm measurements, quality check for samples AV claim, do filing for TCS Claim and do FTIR analysis.

- **Week 21:** Do testing for curling after ageing, update file for "Quality Defect Sample", do filing for TCS Claim and arrange document for calibration report for audit.

- **Week 22:** Printing Test, adhesive cloudy testing, tidy up the locker, curt test inside and outside lab environment, do data analysis for 'Diamond Shape' and do filing for TCS Claim.

- **Week 23:** Clean the adhesive using Methyl isobutyl ketone, Observed 'Diamond Shape" on sample metallized which cause poor printing, check thickness face only and total all, printing test and do filing for TCS Claim.

CHAPTER 4

CHAPTER 4 DETAILS OF EXPERIENCES

4.1 Introduction

There are a lot of experiences I have gained since starting my internship in UPM Raflatac. I have chosen the top 5 experiences I gained to explain more here. For case study of 'Diamond shape creases' at outer layer, I have to improve my communication skills as I need to interview the operator how they manage to pack the Jumbo and also how long they usually pack after the production has been done. This is to get the data for the moisture inside the jumbo and the thickness of packaging. Next, for the effectiveness of WIS, I need to monitor the WIS system to find the defective jumbo and change the quality (QA) to on hold. This is to ensure the defective jumbo needs to be salvaged first. Also, I need to collect samples after they are salvaged for the effectiveness data. Moreover, I learned how to use a printing test using a printing machine and I will explain the procedure. Moreover, I have contributed myself to the Valmet Project. My contribution to this project is to perform the moisture test which weighs the sample before and after the oven. Lastly, is curl testing. I have performed the testing and will explain the procedure in this chapter.

4.2 Details of the training and experience gained

4.2.1 Case Study 'Diamond Shape' Creases at outer layer

In this case study is about one defect which has not yet unsolved. The purpose of this case study is to find the root cause of this defect "Diamond shape Crease" which mostly exists at the outer layer of jumbo. There are two potential root causes which are uneven moisture inside the jumbo and the packaging of jumbo is too tight. Below is the process I performed to complete this task.

- Observed packaging settings.

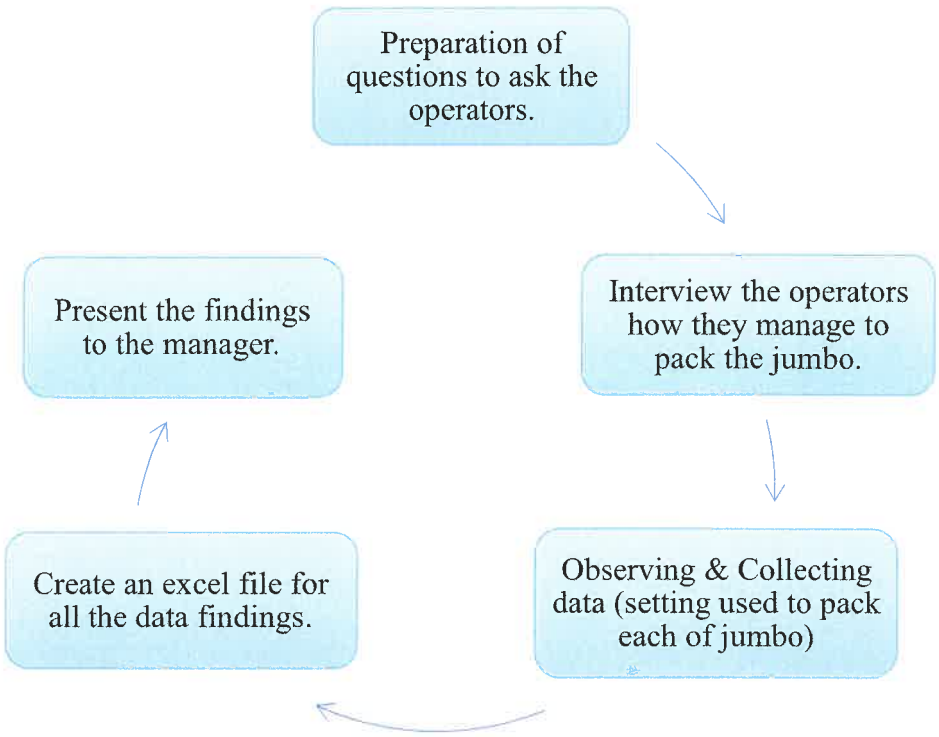


Figure 4.1: Case study process 1

- The time taken for jumbo to be pack.

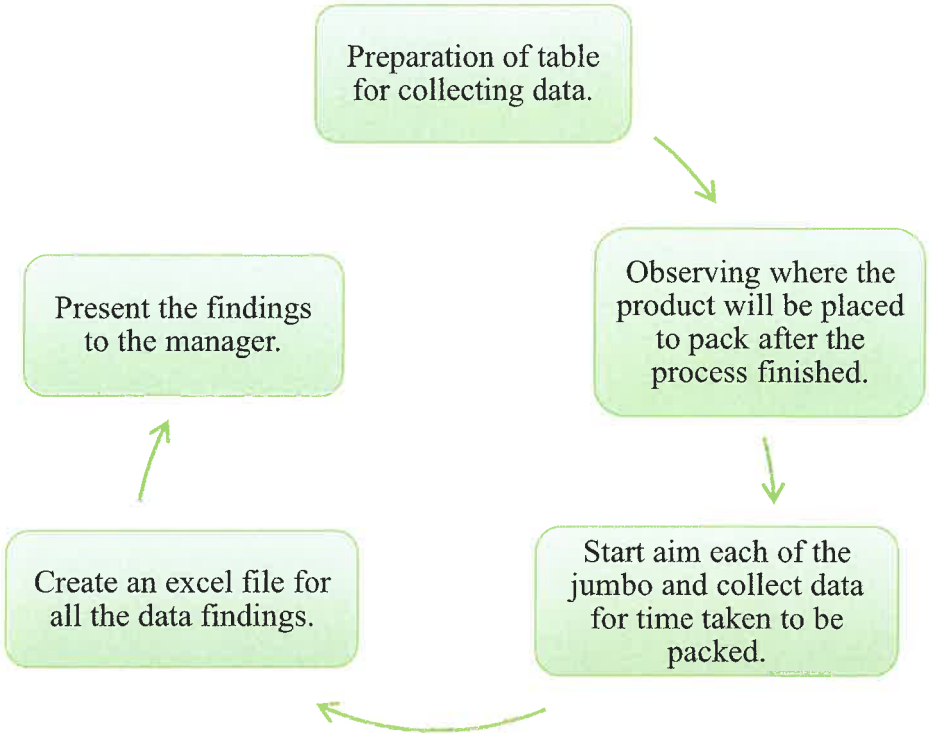


Figure 4.2: Case study process 2

Based on findings, operators used different settings for packing for each of the jumbo. Which means they do not follow the Standard operating procedure (SOP) provided. Also, they did not pack the jumbo very well. For example, jumbo for export need to use edge protector top and bottom but they did not install it. Moreover, the time it takes for jumbo to be packed is not what we expected. It should be 1 hour and above to ensure the moisture is in control (not wet). From my findings, the jumbo is packed within 15 minutes after the process is finished. So, the jumbo is still wet. Thus, these findings can be the potential root causes for this defect "Diamond shape Creases" at the outer layer.

Figure 4.3: Observing & Interviewing operators

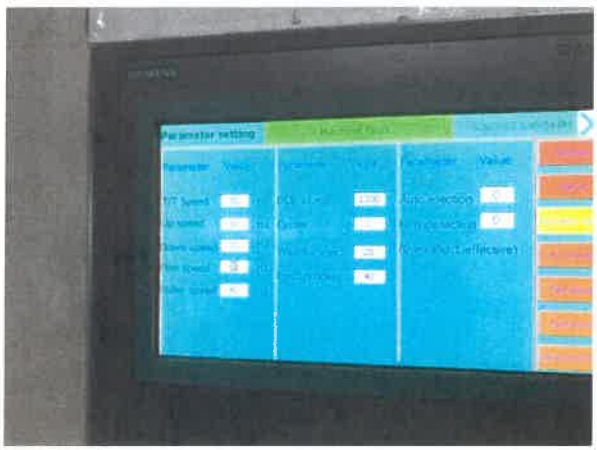


Figure 4.4: Packing Settings Parameter

No.	Id Reels	Product	Order	Produce Time	Packing Time	Pack Within	Edge Protector	Film Speed
1	241220329033	IHP	MY	3:53 PM	5:42 PM	1 hr 49 min	No	36 Hz
2	241220330025	BLH	TH	10:33 AM	10:50 AM	17 min	No	36 Hz
3	241220330026	BLH	TH	10:51 AM	11:06 AM	15 min	No	36 Hz
4	241220330029	FZI	TH	11:54 AM	1:30 PM	1 hr 36 min	No	36 Hz
5	241220330035	HSJ	VN	1:55 PM	2:34 PM	39 min	No	35 Hz
6	241220330036	HSJ	VN	2:14 PM	2:45 PM	31 min	Yes	35 Hz
7	241220331030	IHP	MY	10:00 AM	10:55 AM	55 min	No	35 Hz
8	241220331032	IFU	NZ	12:02 PM	12:20 PM	18 min	Yes	35 Hz
9	241220331033	IFU	NZ	12:12 PM	12:34 PM	22 min	No	35 Hz
10	241220331037	HSJ	AU	2:16 PM	3:39 PM	1 hr 23 min	No	27 Hz
11	241220331040	HSJ	AU	4:39 PM	4:51 PM	12 min	No	27 Hz

	Eksport	Local	Good jumbo	Not Good
Edge Protector	Yes	No	Yes	No

Jumbo width	Film Spe
1.5m & above	32-36 Hz
1m	25-30 Hz

Thickness film	0.023 mm	0.022mm
	23um	22um

Figure 4.5: Data for time taken to be packed

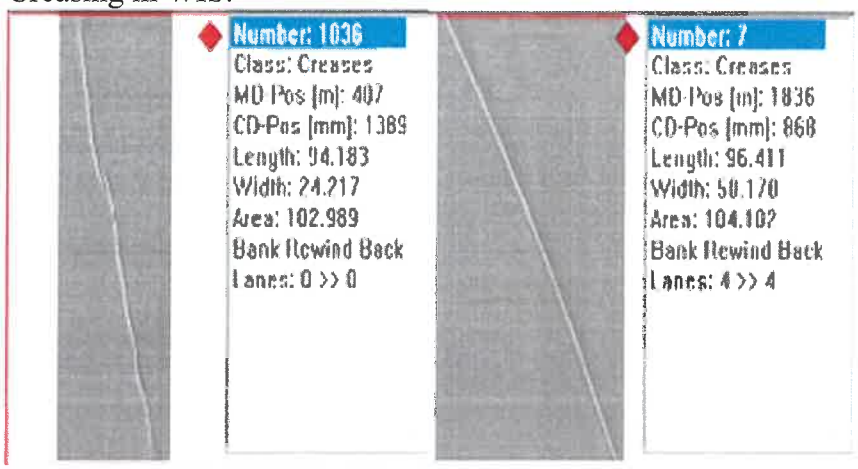
Reel ID	241220329027	241220329033	241220330025	241220330026	860400399353	860300389928	860400399438
Order	MY	MY	TH	TH	ID	ID	ID
Product	IHP	IHP	BLH	BLH	FLD	FLD	FLD
Edge Protector	No	No	No	No	Yes	Yes	Yes
T/T Speed	50 Hz	50 Hz	45 Hz	45 Hz	50 Hz	50 Hz	50 Hz
Up Speed	50 Hz	50 Hz	40 Hz	40 Hz	50 Hz	50 Hz	50 Hz
Down Speed	30 Hz	30 Hz	30 Hz	30 Hz	30 Hz	30 Hz	30 Hz
Film Speed	**36 Hz**	**36 Hz**	**36 Hz**	**36 Hz**	**25 Hz**	**30 Hz**	**25 Hz**
Roller Speed	40 Hz	40 Hz	40 Hz	40 Hz	40 Hz	40 Hz	40 Hz
DIA. of roll	1200	1200	1200	1200	1200	1200	1200
Cycles	2	2	4	4	2	2	2
Wait for eject	20	20	20	20	20	20	20
Eject process	40	40	40	40	40	40	40
Auto ejection	0	0	0	0	0	0	0
Film detection	0	0	0	0	0	0	0
SV roller cycles	10	10	10	10	13	13	13

Figure 4.6: Data for settings parameter (Packing)

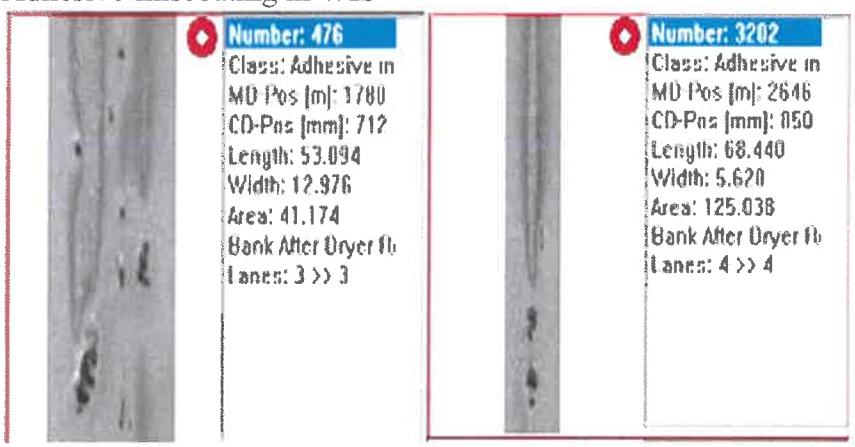
4.2.2 Effectiveness WIS

During 24 weeks of industrial training, I was given a task to find the effectiveness of a Web Inspection System (WIS). This task gives me the opportunity to learn the types of defects that might exist. First of all, I need to monitor WIS to find the defective jumbo daily. There are a lot of defects obtained in WIS. For example:

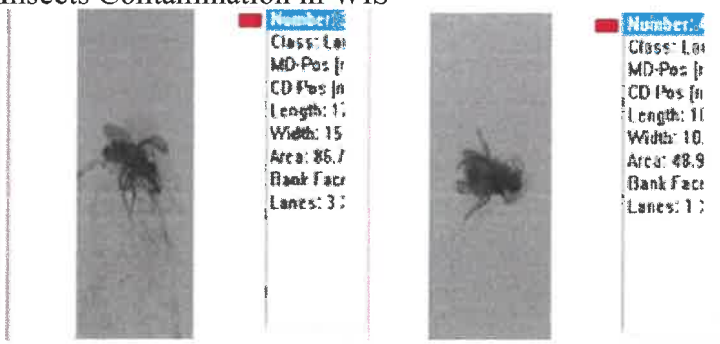
- Creasing in WIS:



- Adhesive-miscoating in WIS



- Insects Contamination in WIS



After monitoring the WIS and finding the defective jumbo, I need to change the Quality (QA) status of the defective jumbo to "on hold" in the Raflow system. So, the operator will take note and do the salvage for these defective jumbos. To find the effectiveness of WIS, I collected the samples after they had done the salvage and compared the defects and also the location in the WIS system and the actual. So, the accuracy of WIS will be evaluated whether WIS is correct or not. Moreover, I need to do the summary of WIS in an excel file monthly and submit the data to a quality engineer who is in charge of the WIS system.

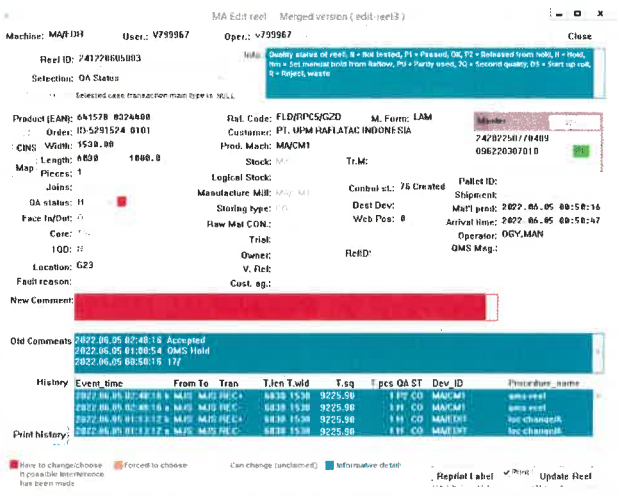


Figure 4.7: Raflow system

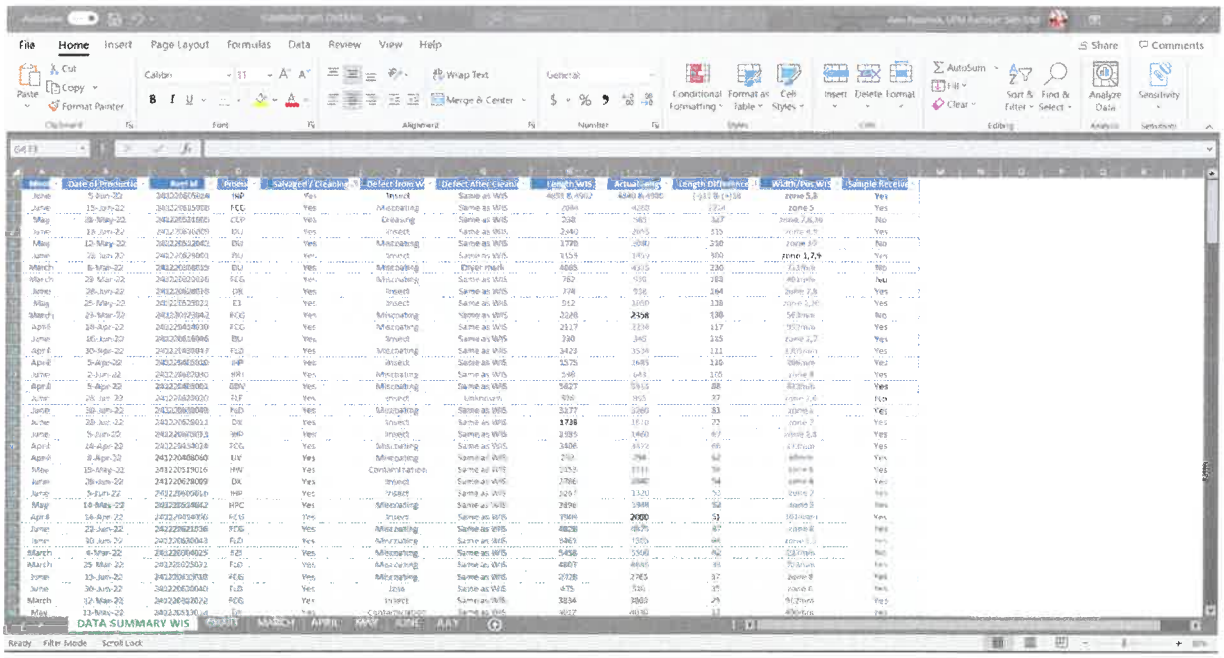
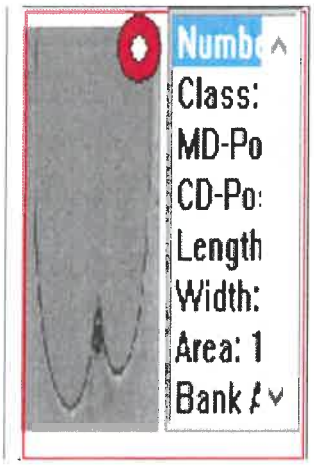
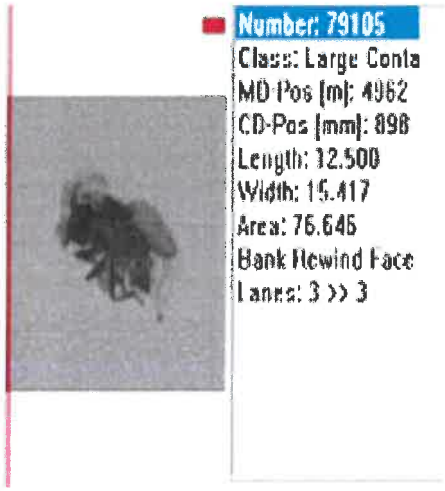
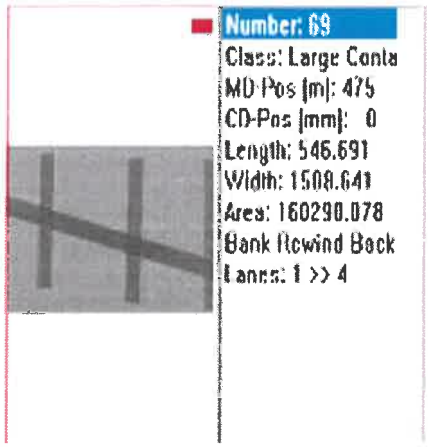


Figure 4.8: Summary WIS

- Collecting sample after they salvaged and compare to the WIS system.

Table 4.1: Defects WIS & Actual Defects

Defects in WIS system	Actual defects
Adhesive – miscoating 	Adhesive – miscoating 
Insects Contamination 	Insects Contamination 
Join 	Join 

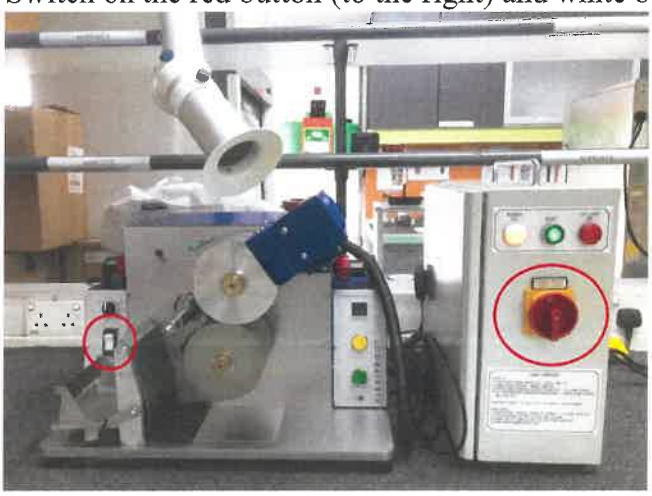
4.2.3 Printing Test

At first, En Shaiful taught and guided me on how to use the printing machine from start-up until shut down procedure. After I mastered the printing procedure, they let me do the printing test during 24 weeks of my industrial training. So here is the procedure of the printing test.

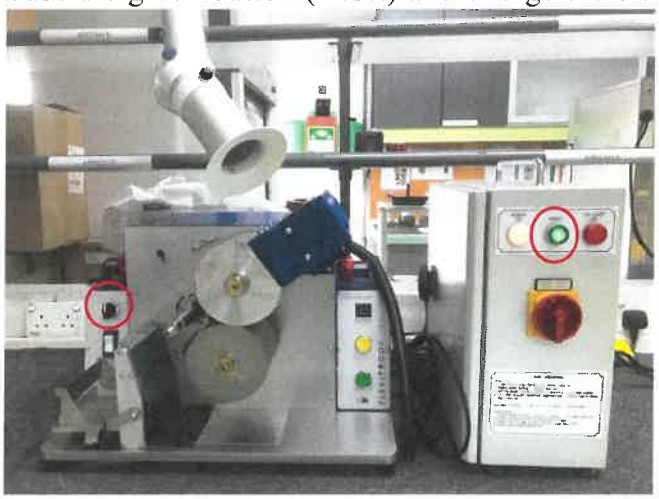
Start-up Procedure

1. Switch on the printing machine.

2. Switch on the red button (to the right) and white button (to down)



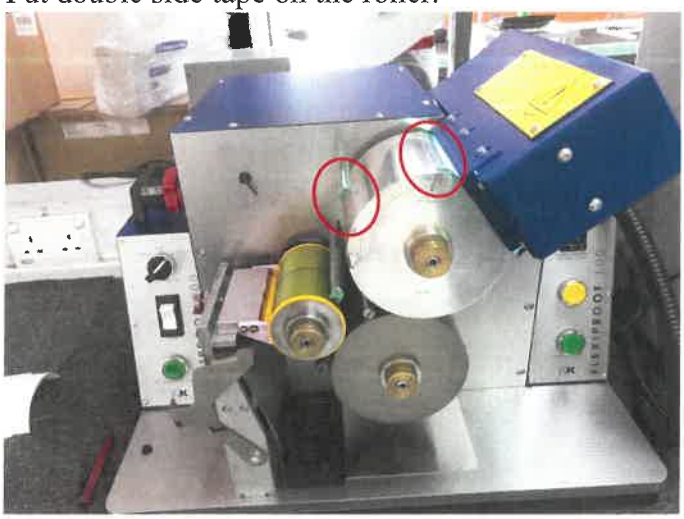
3. Push the green button (Reset) and change the black button from Single to Multi/UV



4. Wait until the green button (Reset) blinking and the have a red light from UV lamp on

Testing Procedure

1. Cut on marking sample into square. (Use glove, knife, square metal and board) and label it with a pen.
2. Put double side tape on the roller.

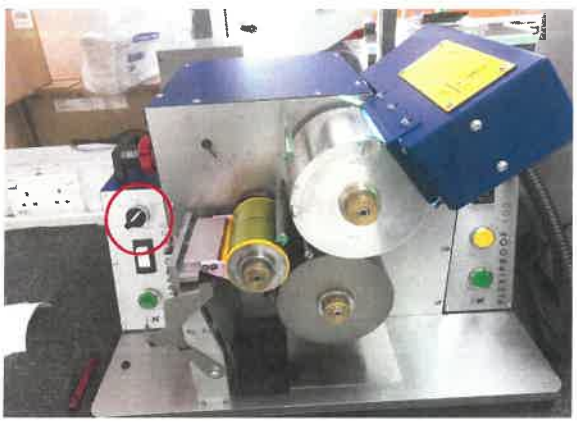


7. Push the green button on both sides simultaneously until the roller done turning.

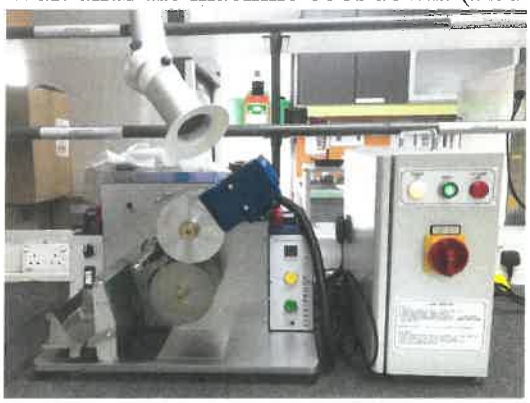
8. Take out the sample after finish printing.

Shut Down Procedure

1. Switch off the black button from Multi/UV to single.

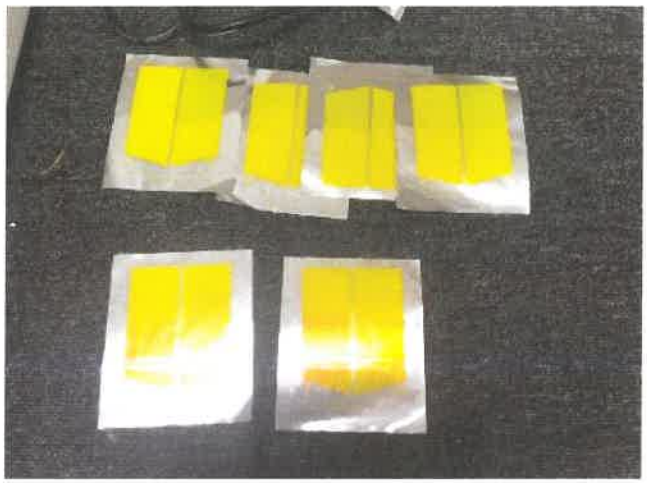


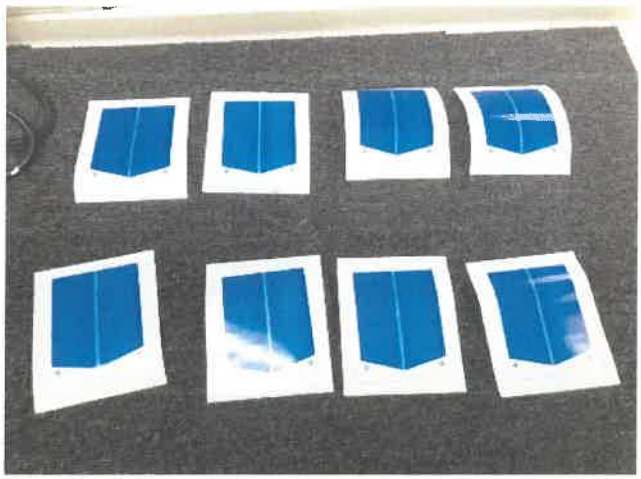
2. Wait until the machine cool down. (Red light turned off- UV lamp off)



3. Clean the ink roller and all the messy thing. (Becarefull with the knife -ink roller)

- Samples Testing:

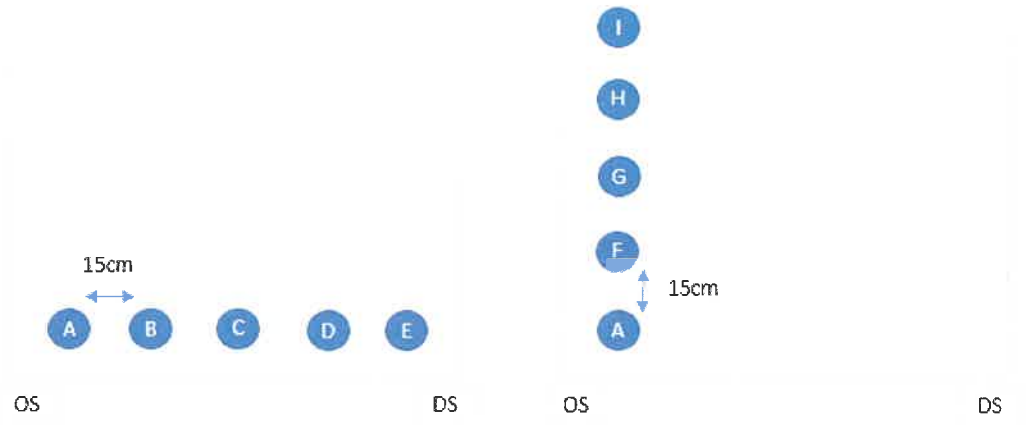




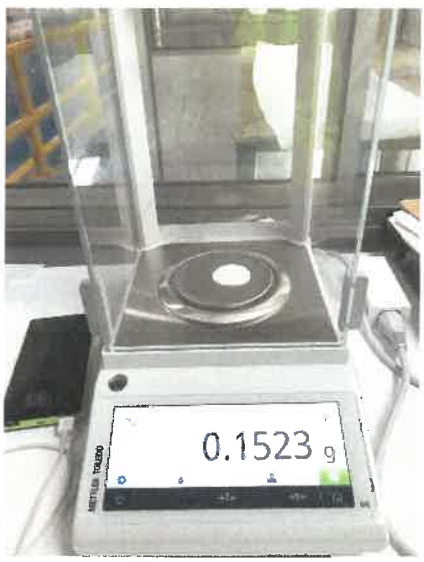
4.2.4 Valmet Project

In this project, they have run 30 trials of jumbo with 5 different machine line speeds which are 100m/min, 150m/min, 175m/min, 200m/min & 250m/min. My contribution on this project is to collect data for the moisture of the trial product.

1. First of all, I need to cut the trial sample in the shape circle as shown below and make sure to label it.

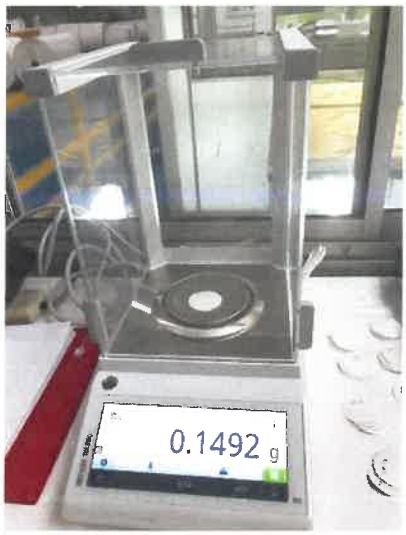


2. After cutting, weigh each of the samples by using a weighing scale.



3. Next, put all the samples into the oven at temperature 50°C for 1 hour.

4. Take out the samples from the oven and weigh each of the samples by using a weighing scale.



5. Collect the data and create an excel file for the moisture data by subtracting the value weight of the sample before the oven with the value weight of the sample after the oven.

4.2.5 Curl Testing

No Pressed under 1 kg weight

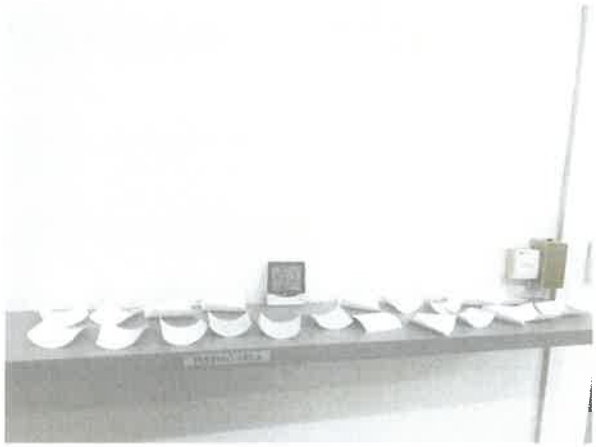
1. Retrieve the A4 samples required from the retained sample room.
2. Cut the samples (O, M, D) into square shapes - 10cm x 10cm using a blade. Make sure to wear gloves.
3. Open the face material from the backing material and hang it on the rack at the quality control room at temperature 21°C.
4. Observed the curl level and took a photo.
5. Create an excel file for the findings report.
6. Email to the manager.

Pressed under 1 kg weight

1. Retrieve the A4 samples required from the retained sample room.
2. Cut all the samples (O, M, D) into square shapes - 10cm x 10cm using a blade. Make sure to wear gloves.

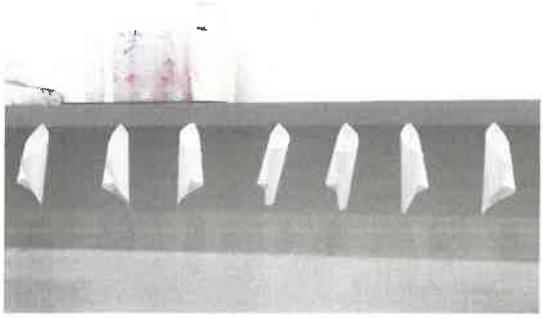
3. Put all these samples under 1 kg weight together into a chamber and set at 50°C & 75% humidity for 24 hours.

4. After 24 hours, take all the samples out and keep at the lab environment for 30 mins

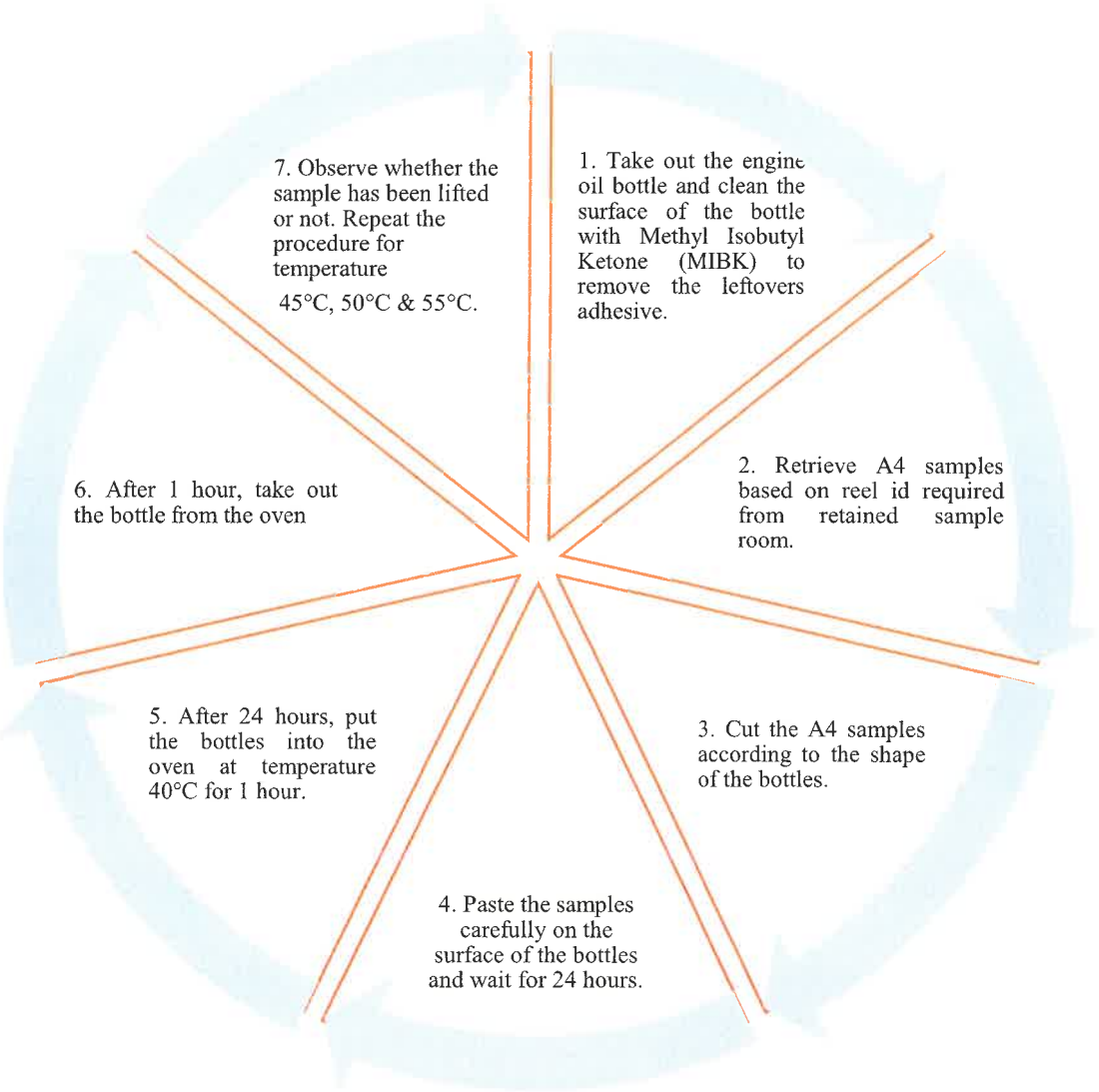


5. Next hang all the samples on the rack to observe the curl level -take photo
6. After 24 hours, take another photo for the curl level
7. Create an excel file for the findings report.
8. Email to the manager.

- Findings:



4.2.6 Label Lifting Test



4.3 Problem encountered and approach adopted for solving problems

During my internship, there were a few problems. One of the problems is the operator did not follow the order. My project is to determine the effectiveness of WIS. So, I need to determine the accuracy of location defects in WIS and the actual location. I order the operator to mention or write the defect length at which they found. Unfortunately, they did not do it and it caused me to collect no data. I complained to the manager and team leader to at least give advice to them. Maybe because I am just an intern and do not have the power to order them. After this case, they finally write the actual length on the defects they found and I have completed my task.

Moreover, I have been given a task to update the latest MSDS. The problem is it is hard to find the latest MSDS on the internet for certain chemicals. Sometimes it is not available and we have to email the supplier to request for the MSDS. Unfortunately, it takes a long time to reply after the due date of my task. There was a time when I found the MSDS but the issue date was longer than the MSDS I have and was absolutely rejected. In order to complete this task, I only focus on the main chemical and update the latest MSDS which is available on the internet.

4.4 Professional and ethical issues

Professional and ethical issue is very important for the internship programs. This is because the professionality and ethicality of the workplaces is the most priority. Some ethical issues, for example toxic workplace, discrimination and harassment, unrealistic goals, and etc did only destroy the environment of the workplace. It also clashes with the company vision and mission. In UPM Raflatac, I was learned about professionality, where I needed to submit my report according to the time given by my supervisor. I also learn about the punctuality in setting my task given and multitasking it.

The environment for my department is very delightful, all the workers under my department were very kind in helping me go through all the problems related. They also respected me as the trainee and do not stop me from learning new things. The discrimination and harassment issue also did not happen during my internship period cause all of them respect me as newbie and as a girl. During my internship period, I also did not play phone and if some workers are gossiping, I did not follow them because I follow the do's and don'ts rules in the office. UPM also set the realistic goals where they want to be the world class labelling and services where there is no side work rather than their only goals. It shows that UPM have put their trust in their product by giving the fulfil energy and responsibility.

Figure 4.9: Safety walk

4.5 Health and environmental issues

For the health and environmental issues, the company have made special meeting for the internships to be more aware about the safety and health issue inside and outside the factory. The simple risk assessment (SRA) meeting was made to aware the internships about the risk that can happen inside the factory. For example, when we needed to enter the warehouse, the company ask us to wear Personal Protective Equipment (PPE), for example googles, boots and we also needed to only follow the road that have been indicated only. This is because, if we carelessly did not follow the path that they make, the incident can happen for example hit by forklift trucks or maybe the worst-case scenario can get major injury. By identifying the hazard that can be happen inside the factory, we can avoid this hazard and ask for the superior to report them, so that there is less incident can happen during the work time.

For the sustainability aspects, UPM Raflatac targeted to decrease the wastewater. This is because the wastewater can give negative impacts toward the environment, and the cost of water disposal will be rising towards time so it will give bad impacts toward environmental issue. Therefore, our company targeted by the end of 2030, UPM will decrease the usage of wastewater to maintain the quality of environmental. UPM made machine modifications that optimize adhesive use and minimize water flushing requirements so that they can reduce water use for grade changes. Based on the UPM Raflatac environmental policies, they want to protect the environment through pollution prevention, improve the environmental management system and environmental performance using continual improvement processes, and share best practices between facilities. Based on the UPM 2030 Responsibility Targets, the UPM Raflatac management team will set environmental objectives for the company with focus on for example understanding the environmental impacts of our activities, products, and services from a life cycle perspective, maintaining a responsible sourcing framework and many more.

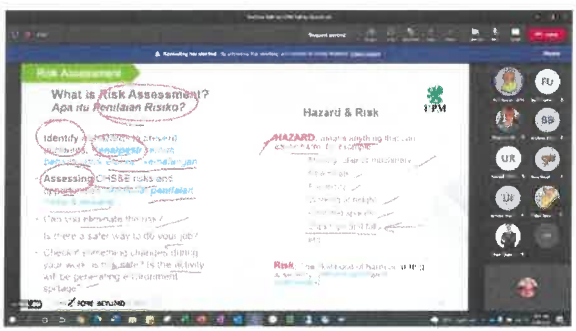


Figure 4. 10: Tool Box Talk - Risk Assessment

Figure 4.11: Tool Box Talk - Hazard

CHAPTER 5

CHAPTER 5 CONCLUSIONS

5.1 Conclusion

It can be concluded that for one semester this year during my internship in the company, there is a lot of new things that I learn about. Mostly how to handle some cases or problems, either regarding from the superior or customer. A lot of useful experience, knowledge, and exposure I gain through this internship program after exposed to the real-world forms of work. Therefore, it has indirectly disciplined the me as an employee and exposed to the organizational structure of departments and firms.

But most importantly, this internship programs give me the opportunity to expand and develop in many different aspects such as communications with others. In quality department, I have learn about Web Inspection System(WIS), Valmet Project, Label Lifting Test, Curling Test and many more, All of this works help me to understand more about how to maximize the quality of our product and also help in solving the cases if our product did not good enough, In the quality department, I learn that maintaining the quality of product is very important before giving them to the customer.

During the internship, many things that opens my eyes in terms of the environment, learning and socializing with colleagues. This internship programmes increases my tolerance with the workers. I also learned a lot from the different task that have been working with during the internship that teach me about the multi-tasking skill. Each tasks have different education and that made it interesting during this internship and it was beneficial for me to learn about. I would like thanks to UPM Raflatac Sdn Bhd for all the help that has been given to me as trainee during this internship programmes.

5.2 Suggestion and Recommendations

1. Recommendation for Internship Company

Company can provide a new or latest technology for WIS machine to increase quality for the production. This is because the function of WIS is to inspect the production if there is any substance that stick in the jumbo. Therefore, by giving the latest technology of WIS, the less manpower that should be needed in order to maintain the quality of the product. Another recommendation, UPM should take more workers to increase the production rate so that the demands from the customers can be fulfilled.

2. Recommendation for University

Internship is a very good way for the students to find their appropriate skills and fully utilize it to gain more experience to increase the skill levels and it will benefit themselves. Furthermore, through industrial training, student will be forced to do something new, and to be positive in whatever they are doing, this can be found by utilizing their communications skills. University can help recommend the good internship program to their student, so that the student can know how the industrial works. It will help student to be more understand about their faculty and show that knowledge without practice is also not good.

REFERENCES

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- Industrial training report guideline from Ms. Noor Hidayu binti Abdul Rani - Industrial Training Coordinator.

2. Website

- UPM Raflatac Official Page
  https://www.upmraflatac.com/

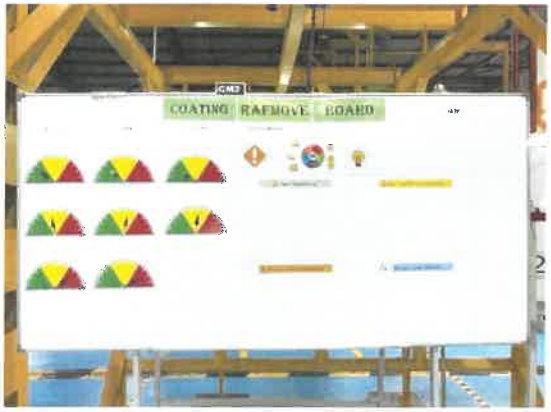
- UPM Raflatac Environmental Policies,
  https://www.upmraflatac.com/siteassets/documents/label-products-and-services/product-safety--compliance/certificates-upm-raflatac-environmental-rules.pdf
  Written by Antti Jääskeläinen Executive Vice President, UPM Raflatac Helsinki, May 19, 2017

- Malaysia factory makes strides in water management,
  https://www.upmraflatac.com/news-and-stories/news/2019/04/malaysia-factory-makes-strides-in-water-management/
  Written by The United Nations' Sustainable Development, April 23, 2019

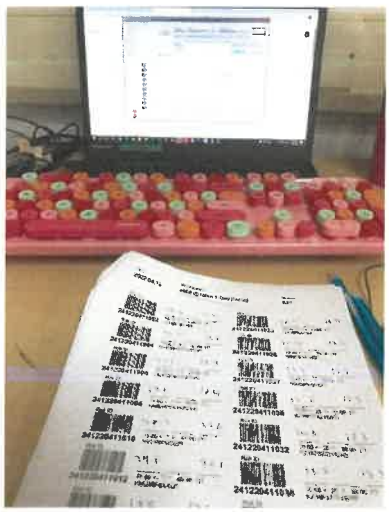
3. Individual – Ms. Eve Ng. (Industrial Training Supervisor)

APPENDIX

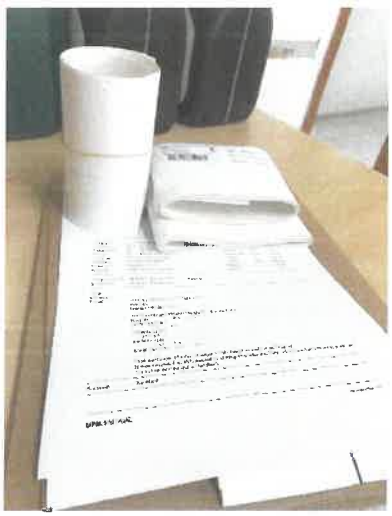
- Rafmove Board for Finishing & Coating Department.



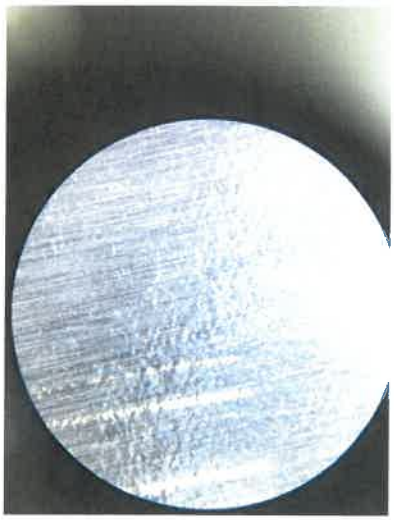
- Quality Teams & Key in data for Longterm Measurements.



- Do filing for TCS Claim & UPM teams with visitor from Vietnam, Thailand & Indonesia.



- Check Diamond shape on samples using Light Microscope – Cause poor printing.



- Coating Machine CM1 & CM2.

- WIS Training with Supplier ISRA from Germany & FTIR Analysis.