



A STUDY ON THE PRODUCTION OF FOOD PRODUCTS AT AFBL

AN INTERNSHIP REPORT

BY

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Submitted to the Department of Nutrition and Food Engineering in the partial fulfillment
of B.Sc. in Nutrition and Food Engineering

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APPROVAL

This Internship titled “**A study on the production of food products at AFBL**”, submitted by **Abu Hanif Noman** to the Department of Nutrition and Food Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Nutrition and Food Engineering and approved as to its style and contents.

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DECLARATION

We hereby declare that this internship has been done by us under the supervision of **Md. Harun-Ar Rashid, Assistant Professor**, Department of Nutrition and Food Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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Finally, I must acknowledge with due respect the constant support and patients of my parents.

EXECUTIVE SUMMARY

Akij Food and Beverage Ltd. is a prominent and diversified conglomerate operating in the food and beverage industry in Bangladesh. Established in 2006, the company has grown to become a leading player, offering a wide range of high-quality products that cater to the diverse tastes and preferences of consumers. Akij Food and Beverage Ltd. is a dynamic and forward-looking company committed to delivering excellence in the food and beverage industry. As we move forward, we remain dedicated to surpassing expectations, driving growth, and creating value for all stakeholders.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

My internship lasted one month and one day in the week. AFBL is the country's largest and most successful beverage company. AFBL is the country's leading and largest beverage company.

AFBL has several departments. HR & Administration, Quality Control, R&D, included the following activities:

- ✚ Maintain all quality control parameters under specifications and ensure manufacturing quality.
- ✚ Product costing insight
- ✚ To compile and submit essential management reports.
- ✚ Every day, a report on production consumption, costing, quality, and so on must be submitted to the authorities.
- ✚ Creating the appropriate production plans in accordance with the production department's timetable.

1.2 Purpose of The Training

Internships enable students to apply theory to practice and provide temporary work for participating organizations. Students are prepared for key professional and managerial responsibilities in all areas by the department. Seminars and professional development subjects are offered weekly.

The Internship:

- ✚ Enables a student with actual real-world experience in the governmental, private, or nonprofit sectors.
- ✚ Allows a student to get valuable public administration skills that cannot be taught in the classroom. These experiences range from helping the internship agency with unique initiatives to learning about the human motivation process in a large corporation.
- ✚ Allows a student to apply theoretical concepts gained in the classroom to real-world public administration situations.
- ✚ Before joining the employment market, a student will gain expertise in a real public, private, or nonprofit organization. This type of experience improves students' employment chances and teaches them what is expected of them as professionals.
- ✚ Allows a student to apply technical abilities taught in the classroom to real-world governmental, private, or nonprofit administration challenges.

1.3 The Akij Group

Akij Group is among Bangladesh's leading industrial giants. Textiles, tobacco, f&b, cement, ceramic, printing and packaging, medicines, consumer items, and other businesses are part of this conglomerate. Akij Group paid 390 million euros in taxes in 2009, making

it the largest local taxpayer, paying 2% of the national budget. Akij also provides healthcare and information and communication technology services. Its 2009 revenue was 89 billion Taka.

AKIJ GROUP's tradition dates back more than a half-century, and throughout the years, Akij has positioned itself as Bangladesh's most confident and esteemed industrial family. Akij Group is now one of Bangladesh's largest corporations. It is made up of 24 large corporations with a wide range of operations and products. Akij Group began as a modest jute dealer over 50 years ago. Since then, Bangladesh's industrial sector has advanced at a breakneck speed.

✚ Akij Cables limited	✚ Akij Foundation School & College
✚ Abrar Tours and Travels	✚ Akij Gas Company Ltd.
✚ Ad-Din Foundation	✚ Akij Gas Station Ltd.
✚ Akij Automotive Industry	✚ Akij Institute of Technology
✚ Akij Biri Factory Ltd.	✚ Akij Jute Mills Ltd.
✚ Akij Cement Company Ltd.	✚ Akij Match Factory Ltd.
✚ Akij Ceramics Company Ltd.	✚ Akij Motors
✚ Akij Computer Ltd.	✚ Akij Particle Board Mills Ltd
✚ Akij Corporation Limited	✚ Akij Pharmaceuticals Ltd.
✚ Akij Food & Beverage Ltd.	✚ Akij Printing & Packaging Ltd
✚ Akij Securities Ltd.	✚ Dhaka Tobacco Industries
✚ Akij Textile Mills Ltd.	✚ Akij Flour Mill Industry
✚ Akij Zarda Factory Ltd.	✚ Akij Rice Mill Industry.

1.4 Akij Food and Beverage Ltd. (AFBL)

Akij Food & Beverage Ltd. (AFBL), an Akij Group subsidiary, began operations in 2006. AFBL produces a wide variety of snacks and beverages for both the domestic and international markets. AFBL is a \$70 million initiative supported by the Akij Group. There are several varieties of beverages. Mojo is a cola brand, Lemu is a lemon brand, and Speed is an energy drink brand. This factory's banana chips are marketed under the brand name Checky Monkey. It's also very popular in Bangladesh.

1.5 AFBL's Mission, Vision, And Values






Mission-

- ✚ Produce high-quality goods.
- ✚ to provide high-quality items
- ✚ To distribute items with zero defects.
- ✚ Ensure the use of High technology is always used to make high grade items.
- ✚ Enhances life's quality.
- ✚ Contribute to social welfare.

Vision-

"By adhering to quality, we hope to become Bangladesh's most known food and beverage firm." A summary of the Vision is provided below. To be the most renowned food and Beverage Company in Bangladesh, AFBL must be the first preference, most preferred, appreciated, and admired by its consumers and stakeholders, as well as the best among rivals, all while adhering to global food and beverage standards.

Values-

-  Innovation
-  Teamwork
-  Integrity
-  Customer centricity
-  Respect and trust

CHAPTER 2

CSD PROCESSING PLANTS

2.1 Carbonated Soft Drink Products and Expiration Periods

Carbonated beverages or soft drinks:

Products	Quantity
SPEED	250mL
MOJO	250mL, 500mL, 1L, and 2L
CLEMON	250mL, 500mL, 1L, and 2L
WILD BREW	250mL
LEMU	250mL
SPA	250mL, 500mL, 1L, and 2L

Product self-life/expiration

Products	PET(Months)	Can (Months)
SPEED	4	9
CLEMON	4	9
MOJO	4	9
LEMU	4	9

2.2 Processing of Mojo and Clemon

Akij Food & Beverage Ltd. sells carbonated soft drinks under the brand names Mojo and Clemon. Mojo is black, whereas Clemon is white. Naga mojo is the most distinctive in the Bangladeshi market, as well as in flavor.



Figure 1: product samples

In general, all soft drinks are processed in the same way, and their units are the same. Mojo and clemon are the most famous in the Bangladesh market. Lemu and other drinks are also well-known and popular. In production and filling, all are maintained in special environments with controlled temperatures. Preform turn into the bottle with air at 105°-115°C temperature. Preform weight depends on bottle capacity.

2.3 Speed Energy Drink Processing

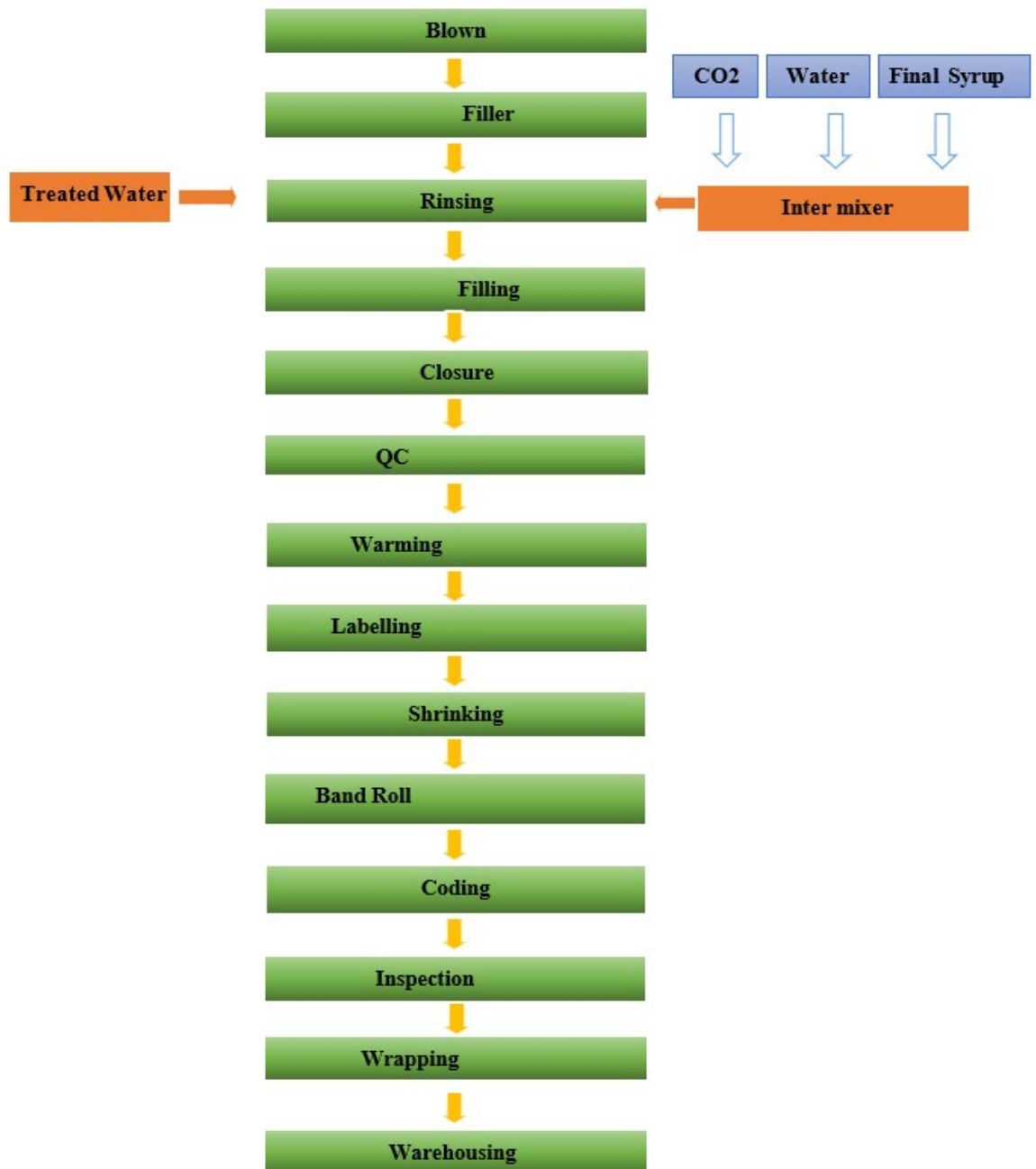
In Bangladesh, Speed is referred to as an energy drink. Akij Food and beverage marketed

speed as an energy drink. It comes in two sizes: a 250 mL bottle of pet and a can, with varied prices. They export Speed to many countries all around the world. AFBL's most well-known and famous product is speed. AFBL employs completely automated, digital machinery.

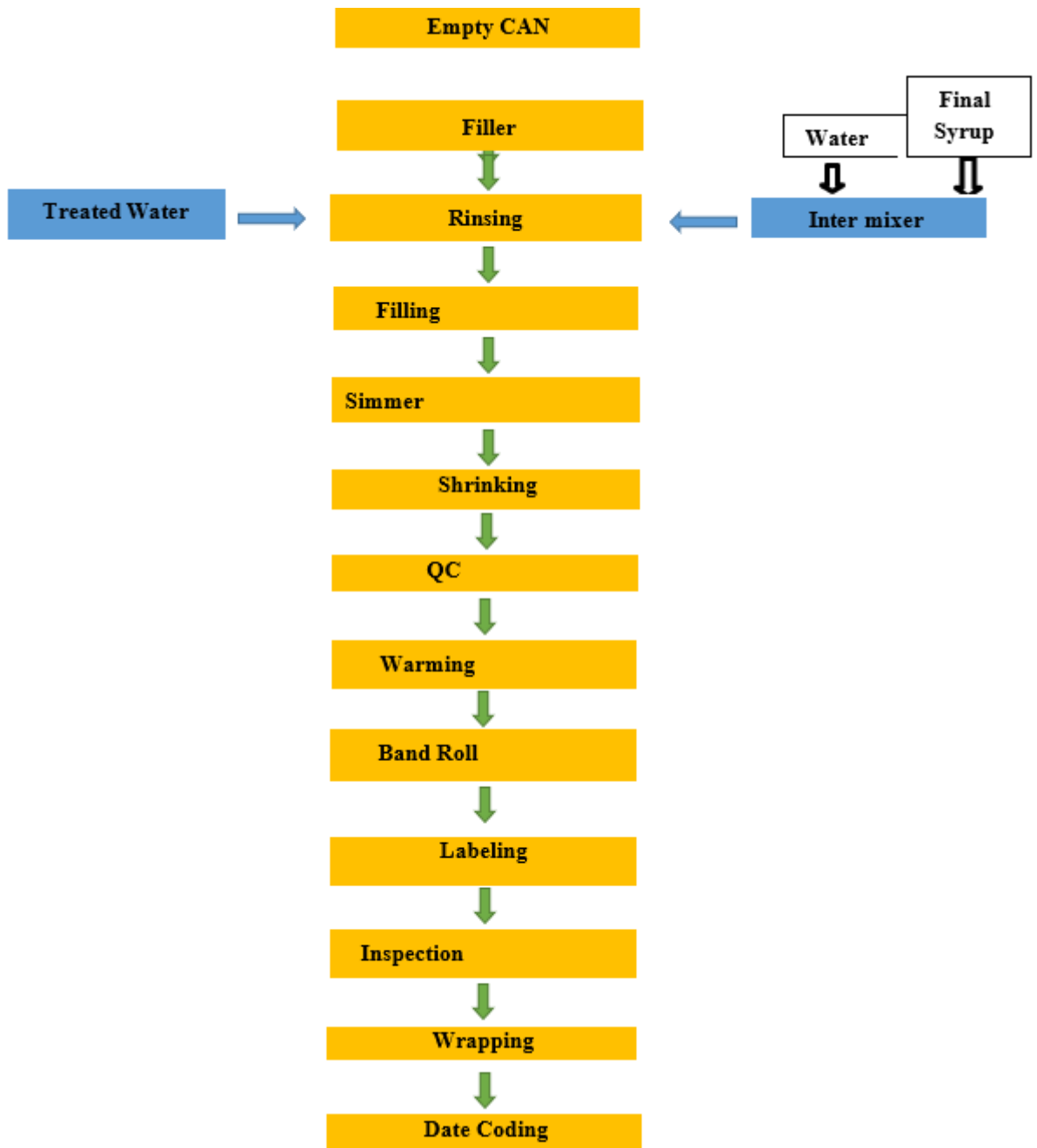


Figure 2: Speed sample

2.4 Flow Diagram of CSD Processing (PET)



2.5 Flow Diagram of CSD Processing (Can)



CHAPTER 3

JUICE PROCESSING UNIT

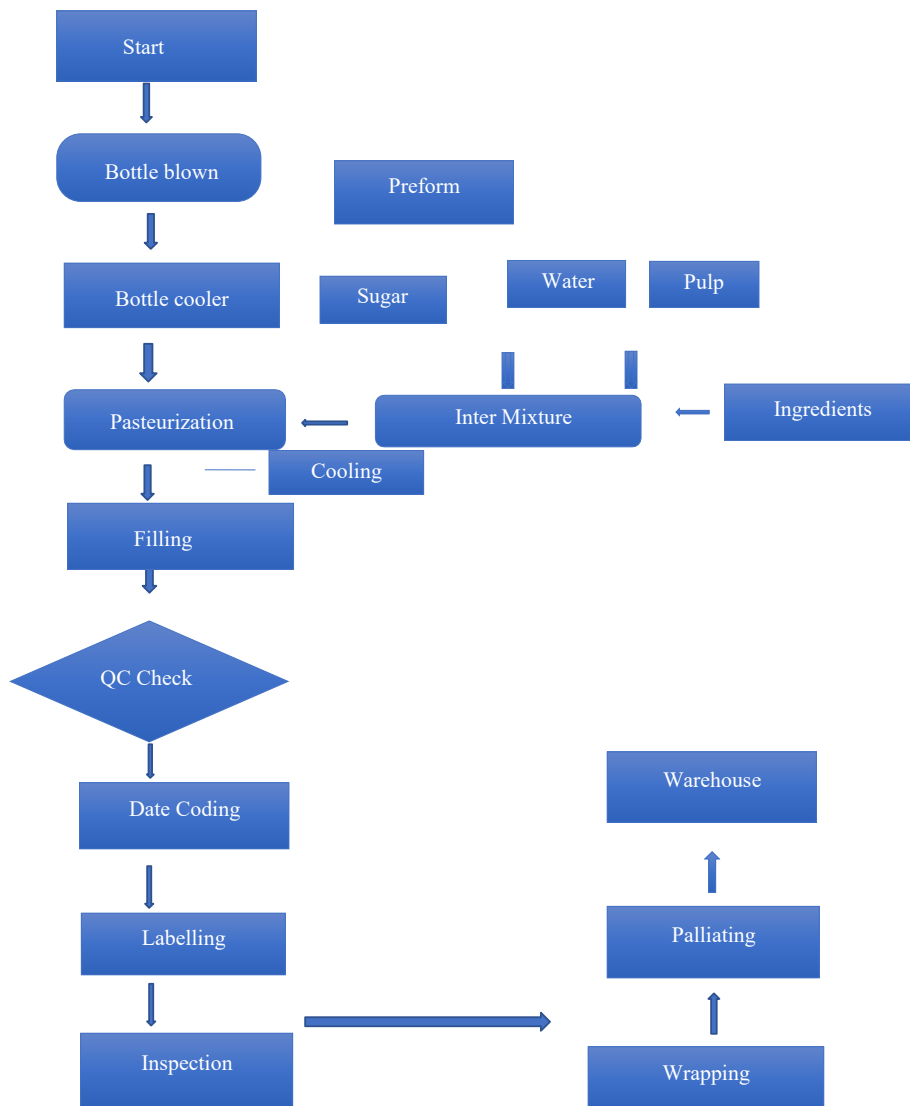
3.1 Juice Processing

Frutika juice is the brand name for mango and grape juice. They create juice by maintaining or implementing an advanced method known as aseptic filling. Under these circumstances, the juice is canned or bottled and sterilized. Maintain the temperature and other environmental variables during this procedure. One comes in two forms: a bottle (PET) and a tetra package.



Figure 3: Juice sample

3.2 Juice Processing Flow Diagram



CHAPTER 4

MILK PROCESSING UNIT

4.1 Milk & Products

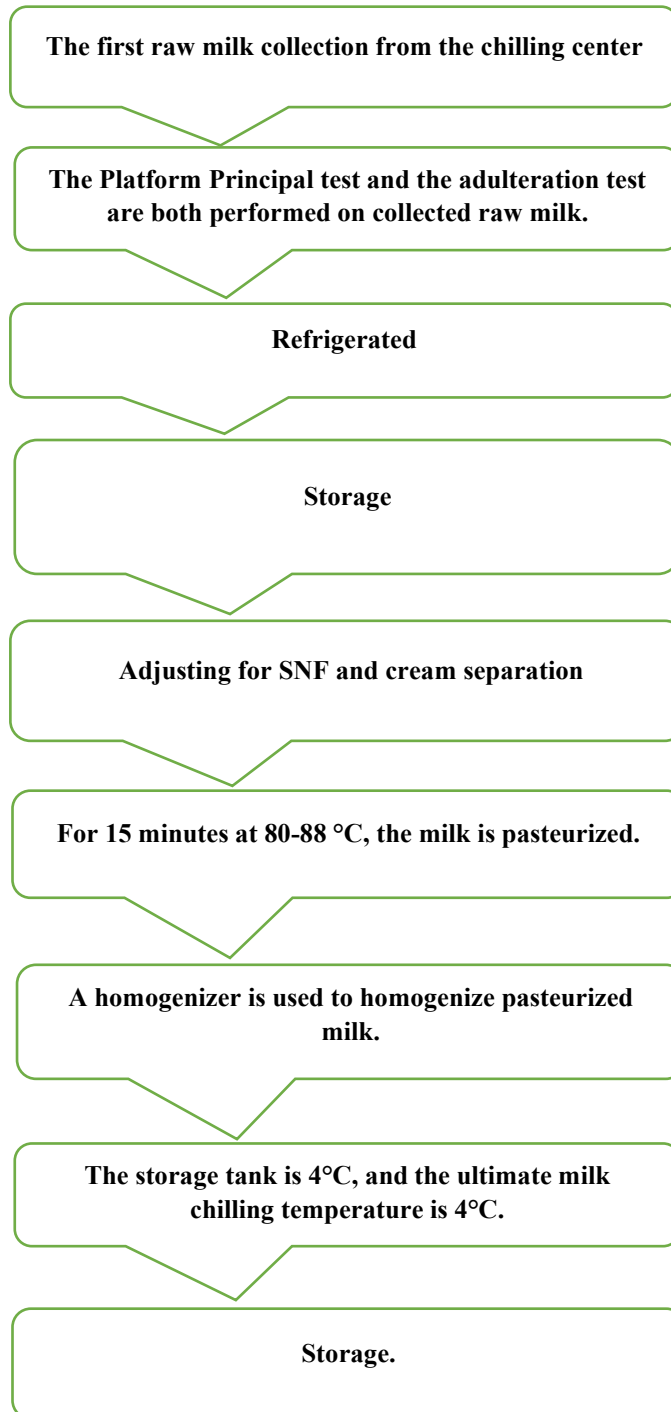
The fundamental components of milk are:

S/I No	Elements	Percentage %
1	Water	86.6
2	Milk sugar (Lactose)	4.7
3	Fat	4.6
4	Proteins	3.4
5	Vitamins and Minerals	0.7

Milk products include:

- ✚ Pasteurized milk.
- ✚ UHT milk.
- ✚ Yoghurt.
- ✚ Ghee.
- ✚ Butter.
- ✚ Mango and chocolate flavored milk.
- ✚ Mango milk shake.

4.2 Milk Processing



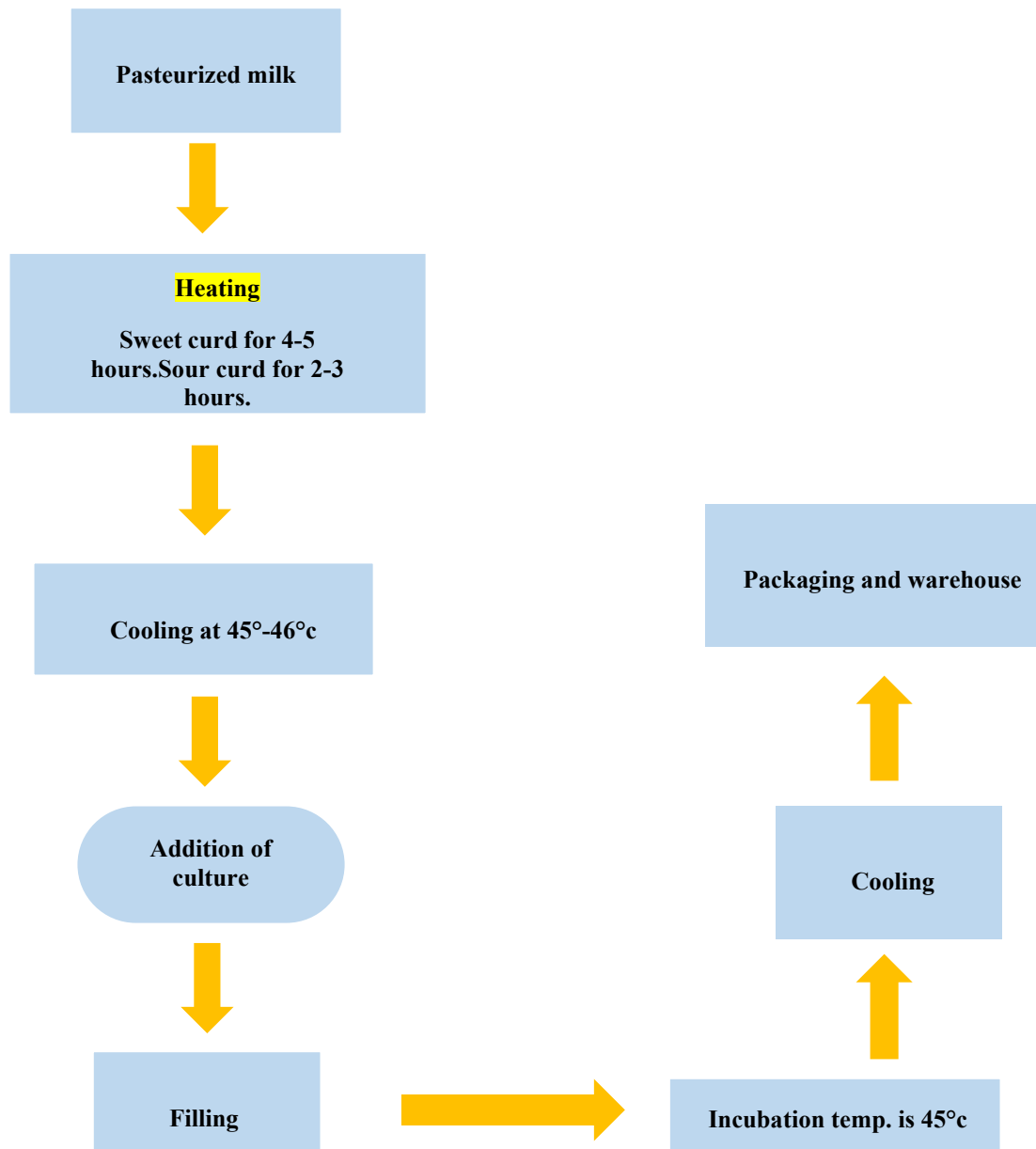
4.3 Yoghurt Process

Yoghurt is a semi-solid food made from milk fermentation by microorganisms. AFBL makes Farm Fresh branded yoghurt. They make three varieties of yoghurt: sweet, sour, and low-fat.



Figure 4: Yoghurt sample

4.4 Flow Diagram of Yoghurt Processing



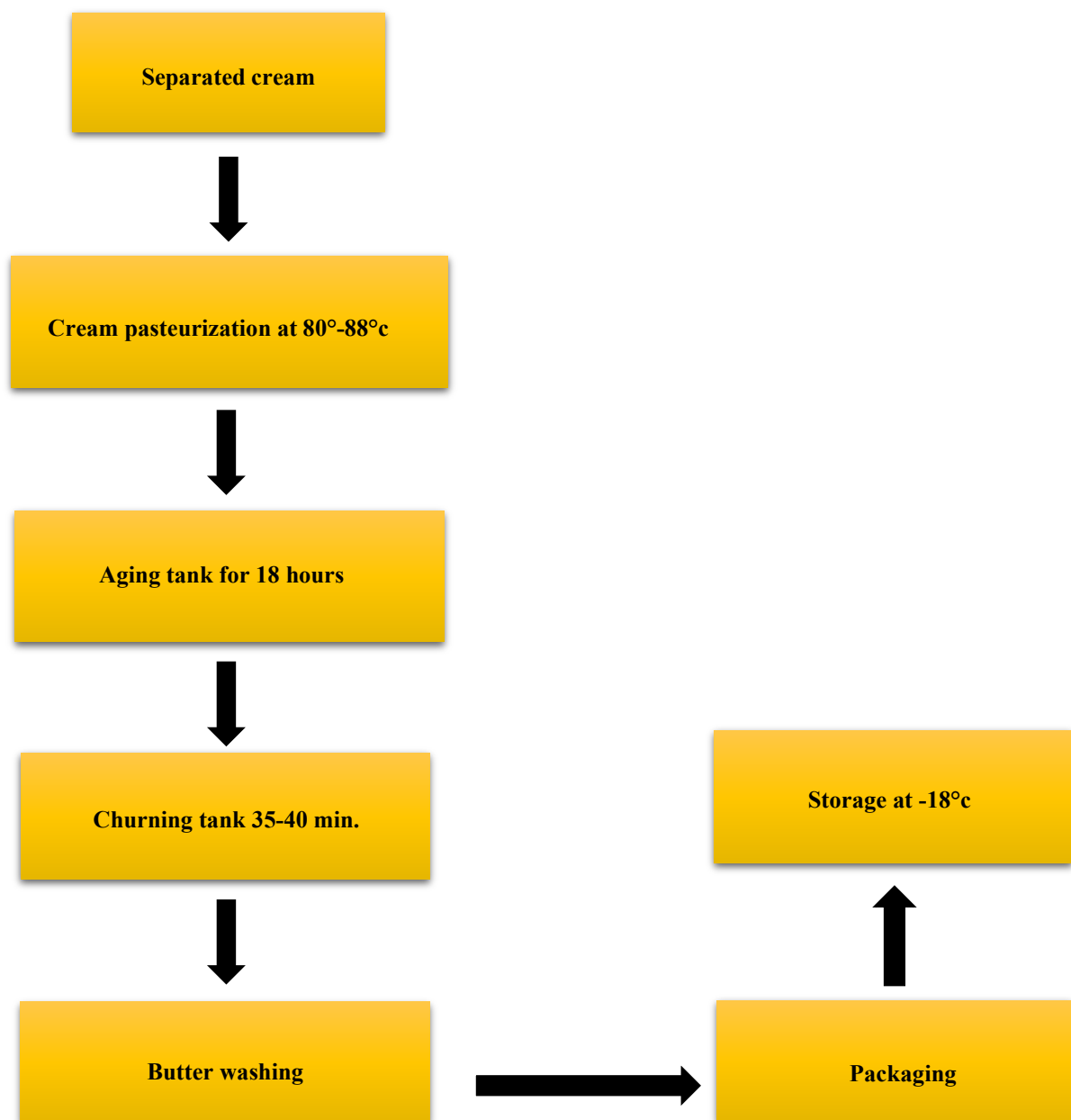
4.5 Butter Processing

Butter

At room temperature, butter is a semi-solid dairy product comprised of fat and protein. Akij Farm Fresh butter is a brand of butter manufactured by Akij Food and Beverage Ltd. Butter is also utilized in the baking sector.



Figure 5: Butter sample



CHAPTER 5

CHIPS PROCESSING UNIT

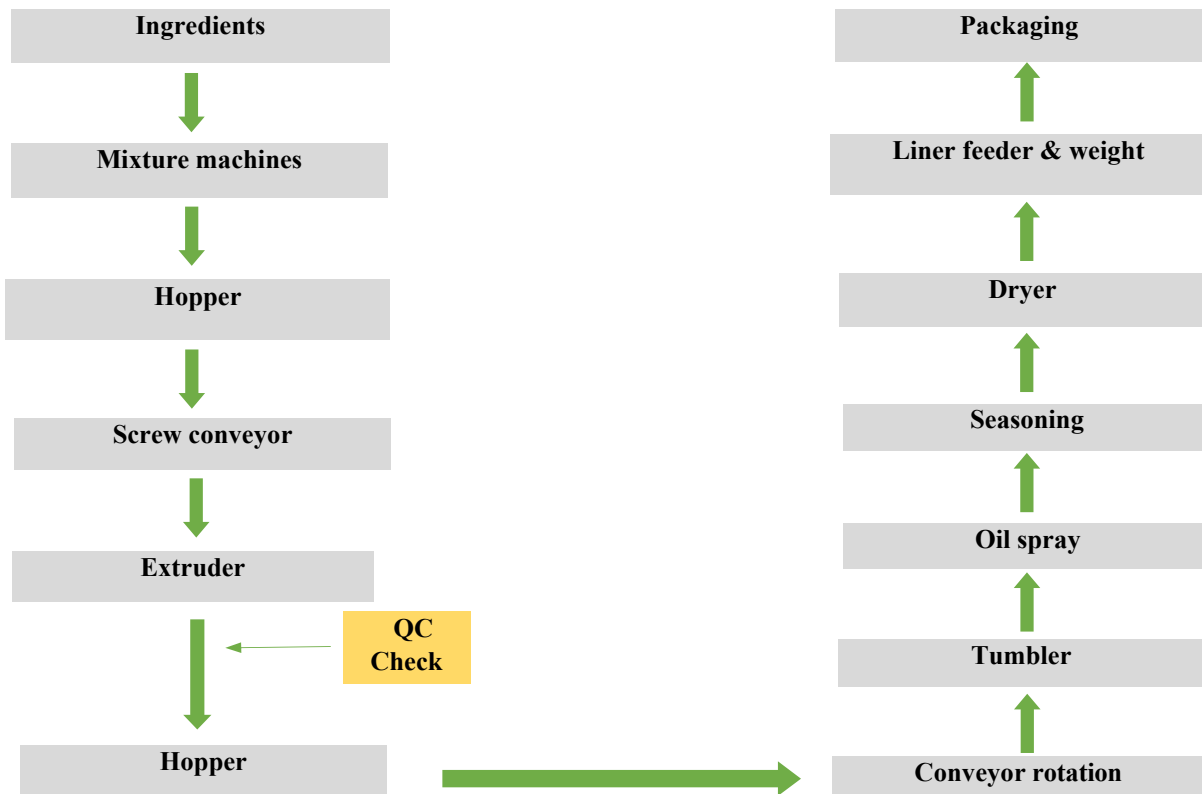
5.1 Chips

Chips are a snack food item in the form of crisp, flat, or slightly bowl-shaped pieces that are seasoned. Akij Food and Beverage Ltd. marketed about five variations of chips. Chips are snack food. People like chips as snacks. AFBL marketed different types of chips. There are cheese puffs and coconut-added chips. AFBL exports chips to different countries all over the world.



Figure 6: Chips sample

5.2 Flow Diagram of Chips Production



CHAPTER 6

CHEMICAL, PHYSICAL & MICROBIAL TEST

6.1 Lab Equipment Name

1. A pH meter is a device used to measure the acidity or alkalinity of a solution.
2. The Brix meter is a device used for measuring the sugar content in a solution.
3. The subject of discussion is the microwave oven.
4. The concept of laminar air flow refers to the smooth and uninterrupted movement of air in a controlled environment.
5. The digital autoclave is a technological device used for sterilization purposes.
6. The colony counter is a device used for quantifying the number of colonies present on a culture plate.
7. The topic of discussion is the microscope.
8. Filter paper is a porous material that is often used in many scientific and laboratory settings for the purpose of separating solids from liquids.
9. The subject under discussion is the thermometer.
10. The BOD tester is a device used for measuring the biological oxygen demand in water samples.
11. A water bath is a laboratory equipment often used in scientific research and experimentation.
12. The digital meter is a device used for measuring and displaying numerical data electronically.
13. A magnetic stirrer is a laboratory instrument often used for mixing and stirring solutions.
14. The device used for testing the integrity of a seal, ensuring its security.
15. A moisture meter is a device used to measure the level of moisture in a given material or substance.
16. The COD Analyzer is a device used for the analysis of Chemical Oxygen Demand (COD).
17. The CO₂ purity tester is a device used to assess the quality and level of purity of carbon dioxide gas.
18. The viscometer is a device used to measure the viscosity of fluids.

6.2 Indicator Making

Sodium thiosulphate (0.1N)

Take 2.6 g sodium thiosulphate in beaker.
Dissolve it into 100 ml of water(distilled).

Indicator mixed

Taken 0.34 g Bromocresol green.
Taken 0.65 g methyl red.
Dissolved them into 100 ml water (distilled).

Phenolphthalein indicator

Taken 0.6 g sample.
Dissolved it into 50 ml alcohol.
Added 50 ml distilled water in it.

Hardness indicator

Taken 6.2 g of sample.
Dissolved it into 100 ml of methanol.

6.3 CSD Test

Acidity Test

Required equipment

- Conical flask
- Burette
- Beaker
- Pipet and pipet filler.
- Magnetic stirrer

Procedure

- 10 ml sample into conical flask.
- 2 drops of phenolphthalein indicator into flask with dropper.
- Titrate it with 0.1N NaOH till then color changes to pink.
- Take data and note it.

pH Test

Required Equipment

- Beaker.
- Magnetic stirrer.
- pH meter.

Procedure

- Take measurements.
- Record.

%Brix test

- Taken sample into beaker and remove CO₂ by using magnetic stirrer.
- Remove magnetic bar from liquid.
- Open the sample chamber from the refractometer.
- Take few drops on sample chamber with dropper.
- Take reading carefully.

Organoleptic test

- Examine the appearance with the present one.

- Appearance must be in line.
- Take an odor and evaluate it to an existing one.
- There is no foul odor and it is compatible with the existing one.
- Taste the sample and compare it to the existing one.
- Taste should be in accordance.

6.4 Microbial Test

Total Mold, Yeast count test

Chemical/Equipment required

- Alcohol 70%
- Water bath
- Incubator
- Autoclave
- Micropipette
- Sterile Petridis (90 mm)

Procedure

- Taken/pour sample in Petridis.
- Finishing autoclave, it allows for settled at 41°C.
- Pour 15-20ml of media in Petridis, adequately homogenized with clock - wise and anti - clockwise direction rotations, and left to settle.
- Incubate the plate inverted at 36°C for 12-48 hours after solidification.
- Observed and count carefully.

Result

Count and calculated as cfu/ml or gm.

Total bacterial count test

Chemical/equipment required

- Alcohol 70%
- Water bath
- Incubator
- Autoclave
- Laminar air flow
- Colony counter
- Micropipette
- Sterile Petridis (90mm)
- Plate counter agar

Procedure

- Taken/pour sample in Petridis.
- After autoclaving it keep for cool at 41°C.
- Pour 16-20ml of media in Petridis, adequately homogenized with clock - wise and

anti - clockwise direction rotations, and left to settle.

- Observed and count carefully.

Result

Count and calculated as cfu/ml or gm.

CHAPTER 7

CONCLUSION

7.1 Learning outcome

- **Understanding Food Production:** During the internship at Akij Food and Beverage Ltd, I gained a comprehensive understanding of food production processes. I learned how various food products, such as beverages, snacks, and dairy items, are manufactured on an industrial scale.
- **Quality Control and Assurance:** I acquired knowledge and practical experience in quality control and assurance in the food industry. This included learning about quality standards, inspection procedures, and techniques to ensure product safety and consistency.
- **Food Safety Regulations:** I became familiar with food safety regulations and standards enforced by regulatory authorities. This knowledge is crucial in ensuring that food products meet legal requirements and are safe for consumption.
- **Teamwork and Communication:** Working alongside professionals in a dynamic industry provided an opportunity to enhance my teamwork and communication skills. I collaborated with colleagues from various departments to achieve common goals.
- **Problem-Solving Skills:** The internship presented challenges related to production efficiency, quality control, and resource management. I developed problem-solving skills by actively participating in addressing these issues.
- **Time Management:** Managing tasks and responsibilities within a fast-paced production environment improved my time management skills. Meeting deadlines and ensuring the smooth flow of operations were essential aspects of this experience.
- **Adherence to SOPs:** I gained an appreciation for the importance of adhering to Standard Operating Procedures (SOPs) in maintaining product consistency and quality. Following established protocols was a key part of my role.

7.2 Conclusion

The internship at Akij Food and Beverage Ltd was an invaluable experience that provided me with practical insights into the food and beverage industry. I not only acquired knowledge in food production and quality control but also developed essential soft skills, such as teamwork, problem solving, and time management. Understanding food safety regulations and supply chain management further enriched my understanding of this dynamic sector.

This internship has not only expanded my academic knowledge but has also given me a glimpse into real-world challenges and solutions in the food industry. I am grateful for the opportunity to learn from experienced professionals and contribute to the company's objectives during my time at Akij Food and Beverage Ltd. These experiences will

undoubtedly be a valuable foundation for my future career in the field of food and beverage production and quality assurance.

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