Internship Report
On

"Akij Food & Beverage Ltd "

Supervised by

Dr. Md. Bellal Hossain
Professor & Head
Department of Nutrition & Food Engineering
Faculty of Allied Health Sciences
Daffodil International University

Submitted By

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Date of Submission:

LETTER OF TRANSMITTAL

18-12- 2019

Dr. Md. Bellal Hossain

Professor& Head

Department of Nutrition and Food Engineering

Faculty of Allied Health Sciences

Daffodil International University

Subject: <u>Submission of internship report</u>.

Beloved Sir,

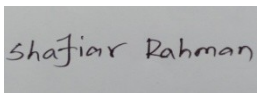
I would like to take this opportunity to thank you for the advice and support you have given to this report. Without your help, it would be impossible to complete this report.

To prepare the report I collected what I believe to be most relevant information to make my report as scientific and reliable as possible. I have intensive my best effort to achieve the objective so the report and hope that my endeavor will serve the purpose. The practical knowledge and experience gathered during report preparation will immeasurably help in my future professional life. I request you to excuse me for any mistake that may occur in the report despite of my best effort.

I would really appreciate if you enlighten me with your thoughts and views regarding the report. In addition, if you wish to enquire about an aspect of my report, I would gladly answer your queries.

Thank you again for your support and patience.

Yours Sincerely,



Shafiar Rahman Shafi

ID: 161-34-514

Letter of Authorization

18-12- 2019

Dr. Md. Bellal Hossain
Professor & Head
Department of Nutrition and Food Engineering
Faculty of Allied Health Sciences
Daffodil International University

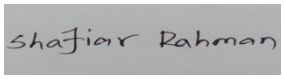
Subject: An announcement regarding the validity of the Internship Report.

Dear Sir,

This is my truthful declaration that the **"Internship Report"** I have prepared is not a copy of any Internship Report previously made by any other students.

I also express my forthright confirmation in support to the fact that the said Internship report has neither been used before to fulfill my other course related nor it will be submitted to any other person in future.

Yours Sincerely,



Shafiar Rahman Shafi
ID: 161-34-514

Approval Certification

On the behalf of the university, this is to certify that **MD. Shafiar Rahman,** bearing ID: **161-34-514**, Program B.Sc. in Nutrition & Food Engineering is a regular student, department of Nutrition & food Engineering, Faculty of Allied health Sciences, Daffodil International University. He has successfully completed his Intern ship program of Two Month in Akij Food & Beverage Ltd, Dhamrai, **on……..**

Then he completed this report on June 19 2019 under my direction. We are that **Md. Shafiar Rahman** completed his internship report by observing our teacher. In addition, I ensure that his report is a worth of fulfilling the partial requirements of NFE program.

Dr. Md. Bellal Hossain
Professor & Head
Department of Nutrition and Food Engineering
Faculty of Allied Health Sciences
Daffodil International University

Approval Certification

This is to certify that **Shafiar Rahman**, ID-**161-34-514**,Program B.Sc.in Nutrition and Food Engineering is a regular student department of Nutrition & food Engineering, Faculty Allied health Science Daffodil international University. He has successfully completed his Internship program of Two Month in Akij Food and Beverage Ltd, Damariand completed this report on June 19, 2019. We are aware that **Shafiar Rahman** had completed his Internship by observing our Administering and Employee.

MD.Shihab Uddin
Quality Controller
Akij Food & Beverage Ltd.

ACKNOWLEDGEMENT

All praises and gratitude to almighty, the most beneficent and the merciful who manages each and everything soundly and enables me to complete in this training.

I would like to thank and acknowledge rendered by ***A.S.M Shihabul Huda,***Manager Quality Control. I would like to thanks my honorable teacher Prof. **Dr. Md. Bellal Hossain, Head of the Department of Nutrition and Food Engineering***,* and**Mr. Amir Ahmed Assistant Professor Department of Nutrition and Food Engineering, Faculty of Allied Health Sciences,** who had given me the opportunity to attend this trainingprogram. This program will help me to build my bright future carrier. It is great pleasure toexpress my great full thanks to ***Md.Helal Uddin, GM, and QMS.***

My feelings during this training was great and I enjoyed it very much. This could only be possible for generous contribution of all Akij Food & Beverage Industries people. My achievement during this training
will definitely help me in my professional field. Thanks to all employee ofAkij Food & Beverage Industries for their
friendly co-operation and Helping me during my training period.

Summary

The beverage and soft drinks sector is one of the fast growing sectors of Bangladesh. AFBL is one of the major local manufacturers of soft drinks in the FMCG sector. In the age of globalization and free trade, it is very difficult to compete in this soft drink and the competition style of this sector is changing very frequently. The AFBL is constantly managing itself with this changing environment of competition.

My research report provides a nominal idea of the beverage industry in our country. Then the overview of the AKIJ Group and also the Akij Food & Beverage Ltd (AFBL), which is a unit of the Akij Group, is presented. After the company descriptive part, the analysis segment is incorporated. Starting with 4ps analysis of AFBL, SWOT analysis, competitive analysis and marketing strategies

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Introduction

Akij Food and Beverage Ltd. (from this time forward to be named as AFBL), an eminent name in Food Processing and Marketing division in Bangladesh, began its voyage officially in 2006 with just 3 items. In any case, inside a range of 10 years, the organization extended its territory of creation in Food and Beverage area by including a decent number of items which draw in the buyers to a great extent and win business altruism. This has been made conceivable by the visionary idea of its organizer late Sk. Akij uddin and its proprietor Mr. Sk. Shamim uddin.

It has set up the processing plants of exclusive expectation with most present day innovation and has been delivering wide scope of assortments like carbonated soda pops, caffeinated drinks, juices, dairy items, snacks, chips, drinking water and so on. The results of bites and refreshments by AFBL gains both national and universal notoriety and discover worldwide market of South-East Asia, East Asia, Middle East and Africa. This is no uncertainty an amazing accomplishment by a Bangladesh Company.

AFBL began its generation at 400 bpm in the carbonated soda pops line and 300 bpm in the juice line. In a time of one and a half year, they have expanded their ability to the level by 1200 bpm. At present, this limit is at the pivotal pace of 5000 bpm. During this period, the majority of their brands earned the situation of either no. 1 or approaching to it in their individual classes among the shoppers.

The processing plant of AFBL has been set up of Krishanpura, Dhamrai, Dhaka. It is situated at around 50 km away from the capital. The implicit territory of the industrial facility is more than 100,000 square meters.

The hardware in this manner arrangement, have been imported from world popular brands like Krones, Tetra Pak, Alfalaval, Sipa, Husky so as to accomplish the great items. The a large portion of the Raw materials required for quality items are imported from abroad. It is a direct result of the realities that the nature of the merchandise hence created, is carefully controlled.

The way toward keeping up the nature of the completed items helps the expression to remember the originator of Akij Group for example "Inflexible quality even in unfavorable circumstance."

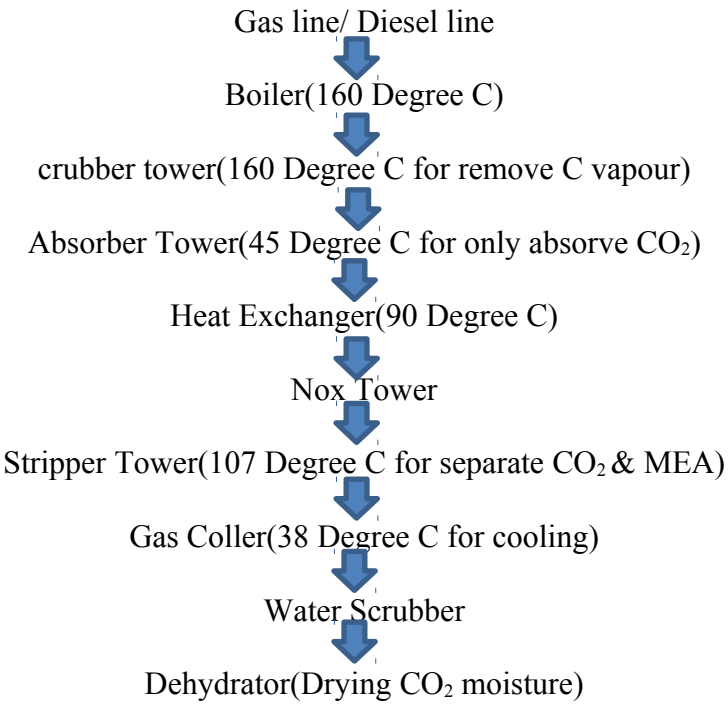
CO_2 Plant

Carbon di oxide making procedure:

Fundamentally two line is utilizations to supply gas or dieselthrough a gas line or diesel line. so the gas diesel blend with O_2 at 160 degree Celsius in boiler.so by the response of gas and oxygen the last productCO_2 is product .This CO_2 contains C particles .In request to evacuate the additional carbon. CO_2 streams into scrubber Tower where the temperature keep up at 160 degree Celsius .so C fume slowly expel from CO_2.A fired channel held inside the internal side of scrubber tower .After the progression theCO_2 is consumed by absorber tower which just absorberCO_2 at 45 degree Celsius. At that point the retained CO_2 goes into the heat exchanger by a warmth exchanger pump. Warmth exchanger keeps up at 90 degree .After that CO_2 streams into Knox tower .All the methodology in keep up at accurate temperature however the CO_2 what is coming idea all the pump isn't unadulterated enough .If contains mono ethane.

Stripper tower expels the mono ethane from CO_2 at 170 degree Celsious. so the unadulterated CO_2 is remained. At last if should be cool.so CO_2 is flown into a gas cooler at 38 degree.CO_2 at last gas into water scrubber .After packing the CO_2 passer into a dehydrator to dry CO_2 moisture and to actuate alumina .As the CO_2 has request which would not be valued by customer .so a carbon channels use to evacuate odder. A repeat at last store CO_2 as liquid structure the liquid is utilized as gas in the shopper product.

CO_2 Plant Flowchart



Carbon filter(Odor remove)

Reprises

CO_2 production use

So as to make the holder or bottle stable, CO_2 is surrendered to the bottle.so business for the most part make the CO_2 in bit by bit without anyone else in the business .

Chips Plant

Maize powder is utilized to make chips. There are four sorts of maize powder as per size of molecule.

There are:

1080 Micron
850 micron
650 Micron
425 Micron

Flour water and cellulose control needs to blend in with maize control. So as to bug 3 heater Extruder is utilized on a condition. Two straw have consume utilized .One is clock another is anticlock. There clock keep up at 90-91 degree Celsius for 2-5 mint to reserve hopper and to chill off the catted irritation. At that point the mixed raw material goes into mixer where oil and explicit measure of water present. At that point Air is use and before the utilizing of air water and sezening is utilized through piper. The oil needs to mix in with 50% Spice and stay 50%

Spice has the mix by hand. At that point the spice blended chips turns out from the framework. Anyway the chips contains 7-8% water. Which should be evacuated by a dryer. Where 3 layer remains drying process constant for 35 minute. At that point the last chips goes into a packaging room. Despite the fact that a transport the bundled chips goes into a save container. A solitary chips package has 22g chips.N2 gas is utilized in the parcel to reserve the chips.

Chips Flowchart

Four types of maize powder

⬇

Mixer machine

⬇

3 Extruder

⬇

Reserve Hopper (90 - 91 Degree C)

⬇

Glow boy

⬇

Oil and seasoning

⬇

Mixer Tank

⬇

Dryer Machine (Remove moisture)

⬇

Packaging Room

⬇

Reserve Hopper

⬇

Packing(weight scale 22g)

⬇

Final Product

Milk Processing Flowchart

Tanker

↓

MRU

↓

Receive Tank(Product tem 0-4 Degree C)

↓

Balance Tank

↓

Holding Tube(for 55 Degree C)

↓

Detractor(For remove gas)

↓

Separator(for cream separation)

↓

Holding Tube(For 77 Degree C)

↓

Homogenizer(For homo oil pressure 160 bar)

↓

Holding Tube (For final heating 88-92 Degree C)

↓

Regeneration (in holding tube)

↓

Cooling (By chiller water in 0-4 Degree C)

↓

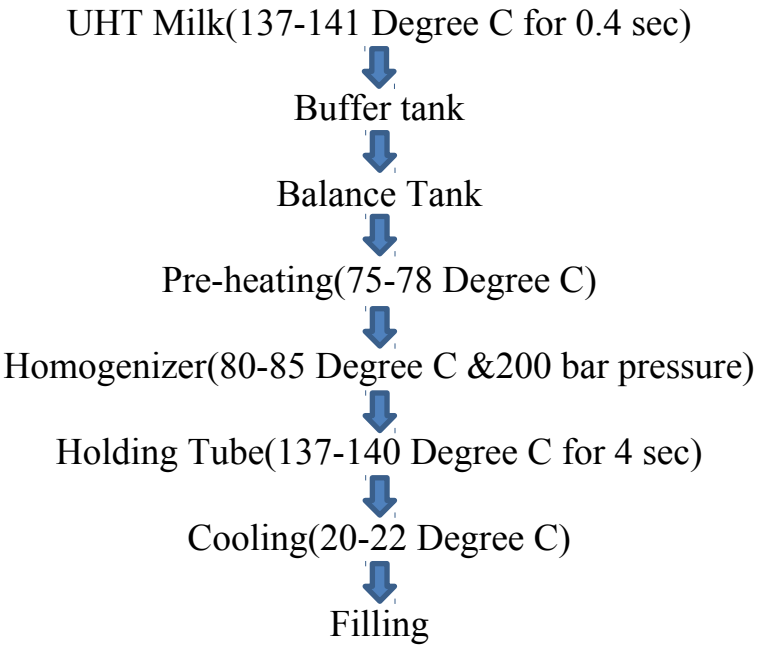
Pasteurize Filling

A vast measure of milk originates from the farmhouse so as to process the milk and to supply consumable quality milk. Milk preparing includes some significant advances which has been executing in the business.

The steps are given in a description bellow:

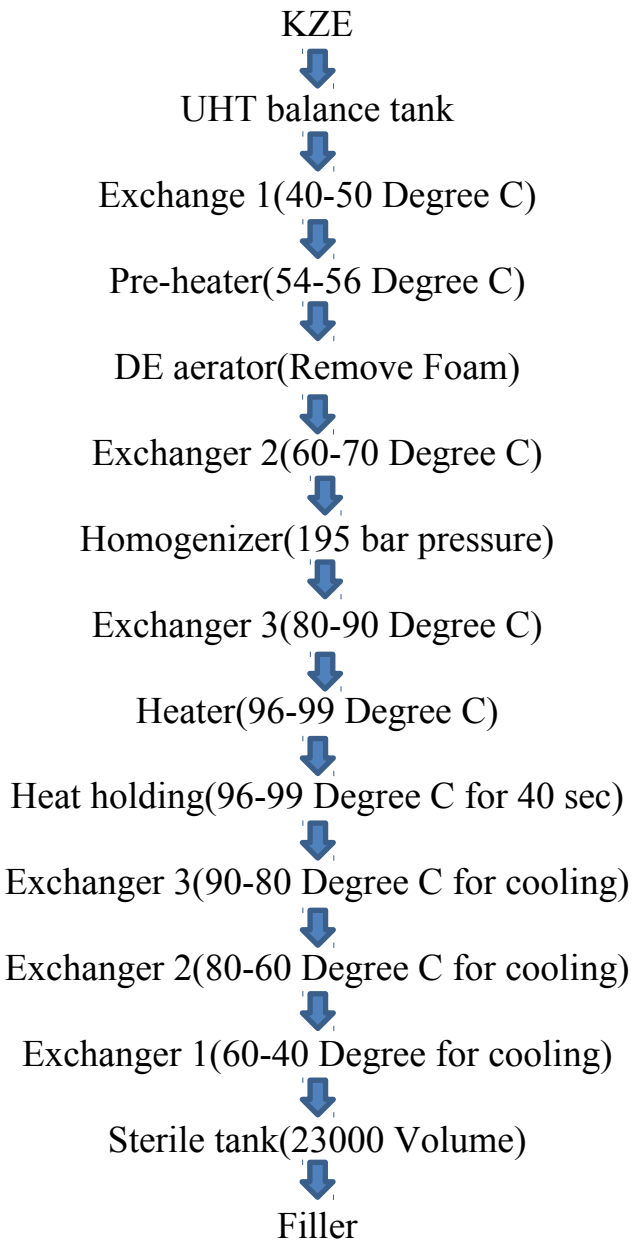
Milk preparing machine includes some segment and tank. This segment have their very own usefulness. Get tank from the outset get the raw milk which has a temperature at 0-4 degree Celsius. At that point a holding tube hold the milk a particular time at 55 degree Celsius. After that a detractor is utilized to remove gas from the milk. As the milk contains tremendous measure of cream which in reality unsafe for human wellbeing so it should be limit. Minimization of cream at a specific rate has been isolated from milk. On the other hand the milk goes straightforwardly into a holding tube. The temperature keeps up have at 77 degree Celsius. After that a homogenizer makes weight of 160 bar due to make same size molecule (homo) in milk. A last heating at that point done at 88-92 degree Celsius for 20 sec so all the microorganism pulverize happen inside the milk. Recovery process leads in holding tube. At long last the milk chill off at cooling segment by chilling water at 0-4 degree Celsius. At that point the last procedure milk is filled into sanitized package.

UHT Milk Flowchart



Aseptic Plant

Aseptic Flowchart



A procedure of making item with no conservation substance or treatment. Three chip tank is required for the procedure.

7 Stages:

1.Normal Water
2.Hot Water
3.Castic soda
4.Hot water
5.Nitric acid
6.Hot water
7.Normal water

Caustic soda uses = 45-90%
Nitric acid = 70%

7 stages is followed so as to execute diverse enhance item aseptic procedure. For same flavor 5 stages is pursued. A product offering stars KZE. Result of intrigue goes directly into UHT balance tank. Where temperature is 30-35 Degree C. Product gets more hotter by exchanger 1 at 40-50 Degree C. At that point it needs to pre-heat at 54-56 Degree C.A DE aerator expels foam from product at 60-70 Degree C.A homogenizer smooth and mixer every one of the particles at an equivalent way are 195 bar pressure. Warming process is finished by exchanger(80-90 Degree C) Heater (96-99 Degree C)and heat holding (96-99 Degree C for 40 sec).Then again exchanger 3 (90-80 Degree C for cooling) Exchanger 2 (80-60 Degree C for cooling) Exchanger 1(60-40 Degree C for cooling). At long last cooler at 25 Degree C. At that point sterile tank volume 23000 at that point filler. At that point water 121 Degree C temp. Warmed and water 30-35 Degree C tem. Cooling for bottle washing. Doosan and Kristal chemical utilizing for bottle washing. chemical utilizing 15 ml .Then bottle filling and leveling and packaging. Juice filling 50 bulb. At that point last product put away.

CSD3 Plant

CSD3 Flowchart

Pre-form bottle (15.2 g cumber color)

Hopper

Preform supply roller

In feed Line

Oven(55-70 Degree C)

In feed Gripper

Blowing Station(Air pressure 25-28 bar)

Discharge Gripper

Transfer Wipe

Capper head machine

Blower (Moisture remove)

Leveling machine control

Date Code Machine

Wrapping Machine

Palletizer machine

Forklift

A pre-form bottle containing weight 15.2 g and color of the bottle is cucumber color is used to make speed soft drinks. These pre-form bottles goes into hopper then through a vertical conveyer. These bottles flown into oven where temperature is maintained at 55-70 Degree C. In feed griper holds the preform. A Blowing station gives the shape of preform at 25-28 bar pressure. The shaped bottles cool down by a transfer whip. These bottles are filled by filler (30000 per hour).Caps are stitched on bottle by capper head machine. These complete read bottles flows into blower in order to remove moisture .Labelling machine gives information of the drinks on the outer side of bottles. A Wrapping machine wraps those bottles and sends them to palletizer machine brings down 120 catch. Then it is stored.

DW Line 2

DW Flowchart

Pre-form

Pre-form dumper

Preform Hopper

Preform line

Blow Mold machine(112-115 Degree C)

Mold (Air pressure 28-32 bar)

2 types cooling

Filling (24 bulb)

N2 posing

Capper

Leveling

Date code machine

Wrapping machine

Air

Final product

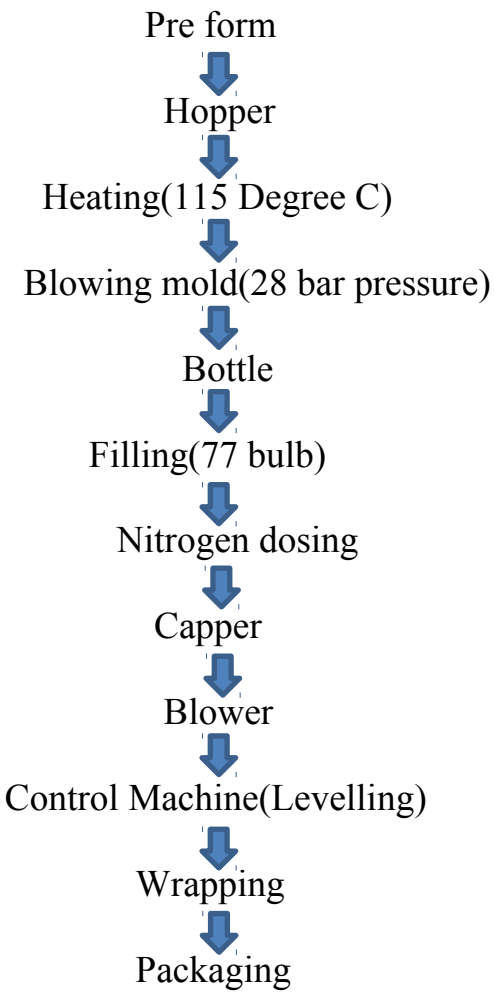
Pre-form containing weight 48g goes into pre-form dumper after that pre-form then pre-form line by vertical transport. A blow shape machine warms the pre-form at (112-115 Degree C).A light is utilized for the situation. A form gives state of bottle by utilizing 28-32 bar pressure. At that point these molded box the chill off by knack cooling (8-12 Degree C) and pre-form cooling (12-16 Degree C).These bottles are then filled N2 dosing is done in bottle. At long last capper stocking and leveling is done outside the bottle. A date code machine prints date outside wall of bottle. Wrapping machine wrapping 24 container by a box. At that point the last water bottles prepare for use.

CSD2 Plant

Carbonated soft drink making Process:

A pre made preform has been made where weight is kept up from 12.7gm for 500 ml. A hopper is utilized to store these preform. A bell transport and roller is utilized to pass on the preform to heating area to module the preform at 115 degree C. At that point the preform move into a chose shape when weight kept up at 28 bar. Chiller cool off the tem. of formed bottle at 10-12 degree C. At that point the hopper is recorded by drink. Nitrogen dosing process is actualized so as to stable the shape of bottle. A capper is utilized to stuck cape on the bottle. Transport at that point pass on these filled bottle to blower. At that point leveling is finished by controlled machine. At long last Wrapping and packaging is accomplished for selling motivation behind CSD.

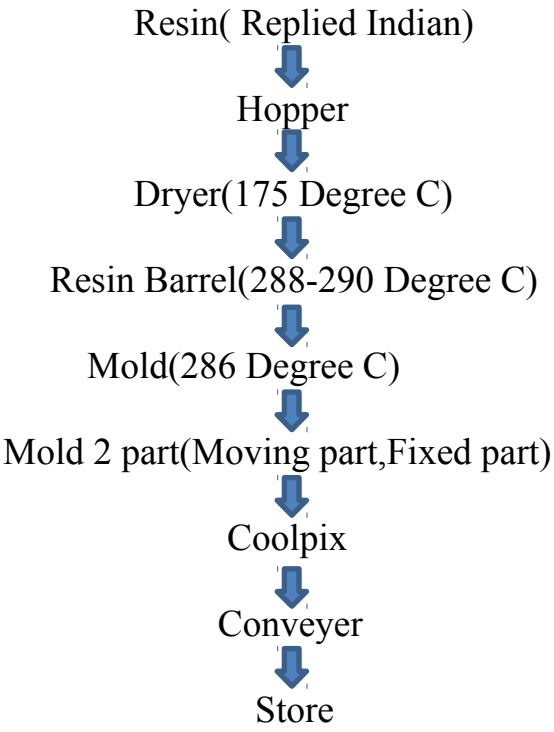
CSD2 Flowchart



PPS Plant

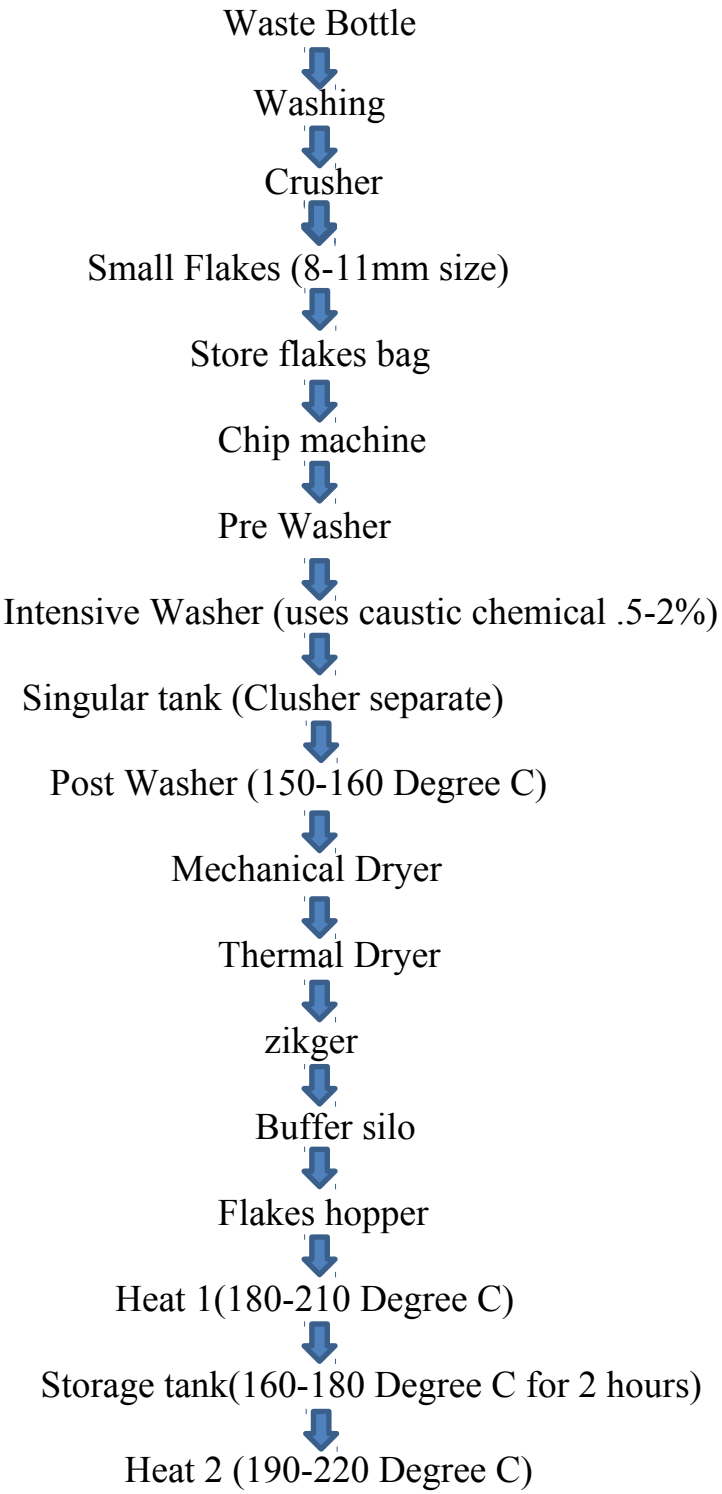
PPS is where pre-form is created from resin. The resin is utilized here is Indian Replied resin. The resin needs to fill Husky Hyped 500 Machine. At that point tar goes hopper by a pipe. Heat has been given on hopper by dryer at 175 Degree C. warmed resin comes to barrel so as to soften at 288-290 Degree C. These liquefied resin are formed at 288 Degree C. Mold warmth of form is 44%.Two parts are available in shape. One is moving part which is known as center plate. Another is fixed part which is known as cavity. A pre-form shape is made by these part and these shape needs to chill off inside a particular time (2.4 sec).These shape fill Coolpix. By a transport these pre-form store at a spot.

PPS Flowchart



Recycling

Recycling Flowchart



Vacuum

Nitrogen(uses for product cooling)

zikzek(color and material separate)

Storage final flakes

Recycling is a procedure an expressing something new from the finish of the some thing.So Recycling process is done at industry.

Four Machine is utilized to do Recycling.
There are:

1.China Crusher
2.Pre form crusher
3.Wash
4.B2B

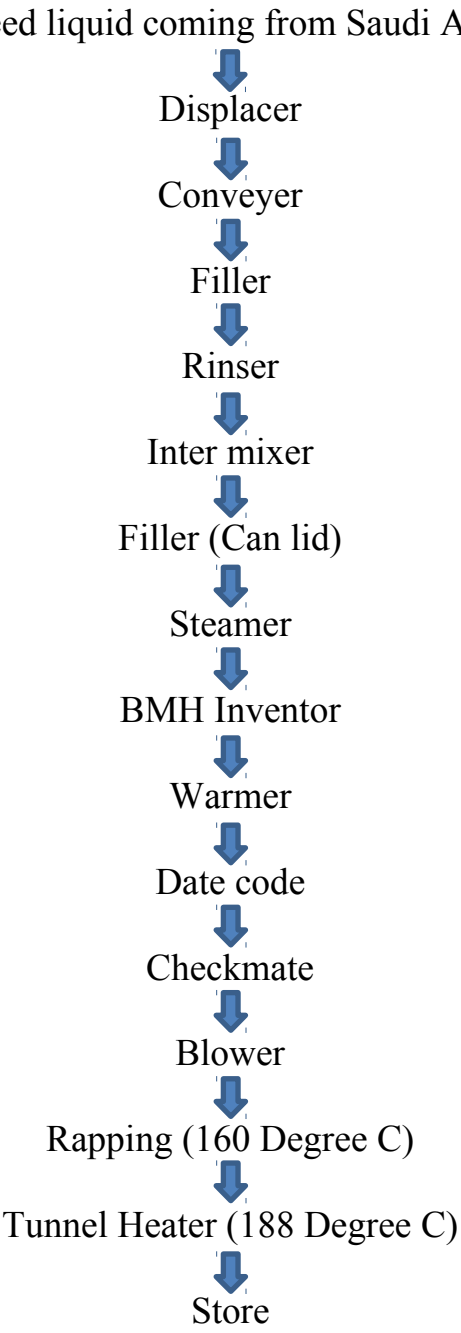
Utilized bottles are putted into a holder where they are washed down appropriately. At that point a crusher makes little drops of washed utilized bottle. At that point these chips are put away in a flaks bag with a capacity of 600 kj. Are then fill chip machine. Through a pipe these chips goes progressively into a pre washer and intensive washer (acidic compound is utilized .5-2%). At that point flakes are rewashed. A solitary tank evacuates the cap materials of bottle from the framework. At that point present washing is done on acidic concoction division. At that point After all that residual particles goes into mechanical dryer. These flakes particles is dried at 120-125 degree C in warm dryer. A gikgger use to isolate dirt and shading. Through cushion storehouse unique cup particles tumble down to enormous sack. At that point it goes drops container. At that point two movies warming is done slowly at (180-21&180-220 Degree C) inside .These two warming time stock tank stores these particles for 2 hours at (160-180 Degree C) N2 gas is utilized chill off the unadulterated flakes. At that point zikzek separate soil and shading and store the last flakes into huge pack.

Recycling processing Figture

CSD1 Plant

Speed Fluid is brought from Saudi Arab. Then collect speed can bottle through the displacer. At the bottle rinse via conveyor. Then the bottle is bake and the water is washed off the inside of the bottle. Then the liquid are inserted into the bottle in 20 bulbs. Then put the speed can lid through the seamer. Speed can capacity 18000 per hour. Speed can reversal via BMH Inventor. Then comes the bottle warmer with conveyor. Warmer Tem.34-35 Degree C. Then the date code is given on the bottle by the date code machine. The checkmate checking all the bottles. Then blower machine. Blower machine remove moisture from the bottle. Then wrapping by honked machine at 160 Degree C Tem. The tunnel heater at 188Degree C Tem. At the end of all the process. The product are stored in the store room through the conveyor.

CSD1 Flowchart



Sugar Processing

Sugar Processing Method:

Crude/raw sugar is purchased from advertise and these sugar is filled dumping container/hopper. Sugar begins to break up with water in dissolver at 41 Degree C. The estimation of brix then shows 61 Degree C. Broken up sugar streams into pasteurizer tank. Warmth exchanger heat the sugar at 82-85 Degree C. At that point an activeted carbon dosing tank changes over the shade of sugar from rosy to white and it shields the sugar from microorganisms. At that point Diamox powder. After the syrup streams into response tank where response among carbon and syrup is occurred. A filter fresh at that point filter the responded product. Staying earth is evacuated by Ama back filter. Of course a warmth exchanger chill off the sugar at 19-21 Degree C. At that point the last sugar is put away at save tank where limit/capacity is 30500.

Sugar Processing

Sugar Processing Flowchart

Dumping (sugar)

↓

Continue Hopper(60 ton per 60 hr)

↓

Dissolver tank(1700L at 45 Degree C)

↓

Brix set(61 Degree C)

↓

Pasteurizer tank(2060L)

↓

Separator

↓

Filter

↓

Activated Carbon

↓

Dicamax Powder

↓

Reaction tank

↓

Filter Vessel

↓

Reserve Tank

↓

Chilling tank

↓

Sampling tank

↓

Crystal clear product (Final product)

Windsore & Printing

For milk firm,
680mm x 85 micron size made by windsore machine then ready for Printing(melting at 180 Degree C)

Hopper

Curing time(24 hrs.)

Mixing resin (PET)

Inner-middle-Outer

Melting

Air Blowing

Chilling

Rolling

Softer corona

Lamination film(90 34mm)

Print

Inspection (print as black, red, yellow, orange)

LD (3layer Lamination)

Ink+ gum -4 micron Specific 71

3 layer+ Lamination join

LDP

24 hrs. (Curing Time)

Cutting

Black, Red, Yellow, Orange (color)

Reaction(Re wending)

3 Layer Join

LD(96 Hrs.)

Final Cut

Finished Product

We need to pick wanted size for milk film 680mm x 8m micron size is made by windsore machine. At that point prepared for Printing. Right off the bat we need to utilize loaded gum to make film by hopper then it goes to restoring for 24 hrs. Blending pitch shading here goes in 3 stages.

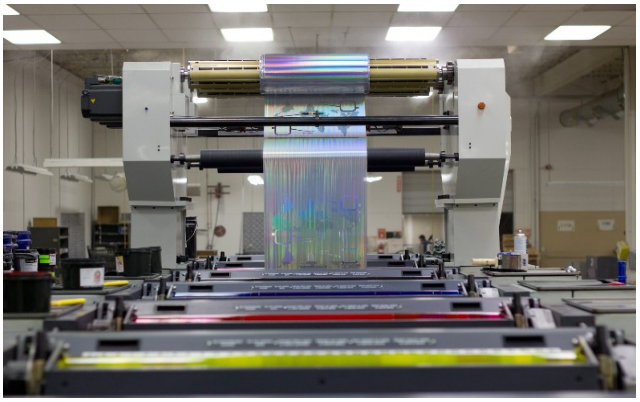
1. Inner
2. Middle
3. Outer

Then it goes for melting then it's blown by air then chilling it by chiller then rolling it. It goes to softer corona then adding lamination film (90 x 34mm) then ready to print. After print it has to need inspection (color as black, red, yellow, and orange) then Ld. (3 layer lamination).

1st layer 12 micron, 2nd layer 12 micron, 3rd layer 12 micron

At that point including (ink+ gum) 4 micron. At that point 3 layer +lamination join at that point including LDP then relieving 24 hrs. At that point cutting the film at that point including shading as dark, red, orange, yellow ten goes to response. Re wending Then 3 layer join then LD in (96 hrs.). At that point polished product &we got the completed item product.

Windsor



Printing

Conclusion

Taking everything into account, Akij Food and Beverage Ltd (AFBL) effectively settled its name and notoriety in the nourishment and refreshment industry with their quality items and administrations. The business are expanding and clients are progressively happy with their item quality and moderate cost. The association is forward-thinking as far as present day innovation, condition insurance, corporate social obligations, generation, showcasing, consumer loyalty and administrations. No doubt Akij Food and Beverage Ltd is at its pinnacle and one of the main organizations in nourishment industry. Not just that, AFBL keeps up and observes all the Bangladesh Government's guidelines and guidelines.

In my time at AFBL I have seen the most capable, experienced persevering colleagues and simultaneously inviting and dynamic as well. The whole association cooperates resembles relatives. I have made the most of my time here with the help of the AFBL group and my bosses. I will end by expressing that being a piece of such enormous and old association empowered me to pick up heaps of useful information which consequently will bolster me for my future work.