

REPORT ON INTERNSHIP TRAINING
TAMILNADU CO-OPERATIVE MILK PRODUCER'S FEDERATION LIMITED
(TCMPT) AAVIN DAIRY INDUSTRY
SHOLINGANALLUR, TAMILNADU



SUBMITTED BY,

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M.SC CHEMISTRY

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SATHYABAMA
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CONTEXT

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3.	QUALITY CONTROL LAB
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INTRODUCTION

ABOUT THE COMPANY

India is well known as the 'Oyster' of the global industry and the largest producer of milk in the entire globe. The cooperatives contribution is high to this total production. In Tamil Nadu, AAVIN is the first cooperative milk society dealing with milk and value-added products of milk. AAVIN union is a government which was founded in the year 1958. Milk is procured from the village level societies twice a day. The milk cost payment is made on the basis of a quality test which consists of Fat and Solid Non-fat content.

THE PRODUCTION LEVEL OF MILK

The AAVIN Dairy industry produces about 65,000 litres of milk during the Summer period and 80,000 litres of milk during the Winter period. This happens because during the dry summer months there will be a low availability of green fodder for cattle for the fall of milk production.

DISTRICT UNIONS OF FEDERATIONS

There are about 17 district Co-operative Milk Producers Unions functioning in Tamil Nadu, covering 30 Districts. They are;

- Kancheepuram- Tiruvallur
- Villupuram
- Vellore
- Dharmapuri
- Salem
- Erode
- Coimbatore
- Nilgiris
- Madurai
- Dindigul
- Trichy
- Thanjavur
- Pudukottai
- Sivagangai
- Tirunelveli

- Kanyakumari

FUNCTIONS OF CO-OPERATIVE MILK PRODUCERS UNION

1. Establishment of chilling centres.
2. Formation of new milk routes to collect milk produced by the members of the societies.
3. Collection of milk from societies, process, and pack in modern dairy.
4. Supply of Quality of milk.
5. Fixation of procurements and selling milk price of milk.
6. Supply of inputs to the members of the societies.

PURPOSE AND SCOPE

INTERNSHIP PURPOSE AND STUDY:

The purpose of the internship is to obtain extra knowledge about the dairy centre and to know about the function and activities of AAVIN. In this internship, I get to know about the milk and milk-based processing methods of AAVIN situated at Sholinganallur. I have attained a lot of information which includes production, products, sales, profit, loss etc. In this project, we also took effect to know about, assessing the quality of the milk via various tests and also, I have learned about the waste-water management.

SCOPE OF THE STUDY

I have started this internship to know about the milk and milk-based processing methods of AAVIN situated at Sholinganallur (Chennai). I have attained a lot of information's which include production, products, sales, profit, loss etc. in this training period, I also took effect to know about assessing the quality of the milk via various test and also, we have learned about the wastewater management.

OBJECTIVES

1. To obtain extra knowledge about the dairy centre.
2. To know about the functioning and activities of AAVIN.
3. To know about the financial highlight of the dairy centre.
4. To know about the process of a dairy product in the dairy centre.

5. To know about the waste water management in the dairy centre.

IN-PLANT VISIT

• RECEPTION DOCK:

Milk is received in insulated tankers of 9000 liters and 15000 liters capacity from different unions. Tankers are weighbridge before and after emptying. The reception section has two reception points for tankers which can be used alternately. Cleaning of tankers by flushing hot water is carried out at reception points, Milk pump with a capacity of 20000/hr is installed in the reception section.

Unloading of tankers is carried out in automated mode with PLC Control. A total of 5.2 lakh liters of milk is received per day on average which comprises mixed milk, Separated skim milk, and concentrated skim milk.

• TYPES OF SILOS:

1. RAW MILK SILO:

This tank is used largely at dairies for storing and keeping milk at cool temperature these are insulated storage tanks (silo). Inside the tank welding lines are ground and polished. The silo body material is stainless steel. The capacity of this silo is 1000000L.

The pumping raw milk is stored in this silo. This silo milk only goes to the plant to pasteurize and homogenization and from the processed milk. These milks are stored in the processed milk silo.

2. PROCESSED MILK SILO:

The processed silo was comparatively smaller than the raw milk silo. The capacity of silo less than the raw milk silo. The capacity of this silo is 30000 L. These silos are washed using CIP and sterilised after every refill.

This silos contain different types of milk such as:

1. TM - TONED MILK
2. DTM- DOUBLED TONED MILK
3. SM - STANDARDISED MILK
4. FCM - FULL CREAM MILK
5. TEAMATE

6. COW MILK

so these milks only storage tank and go into the packing section to packed...

- **STORAGE SECTION**

Milk is kept in enormous containers known as SILOS. There are & SILOS IN total, each with a volume of one million square meters. After entering the balancing tank and passing through a plant chiller, the milk from the tanker is pumped into the SILOS. different types of milk are kept in each SILO. Three SILOS are set aside for the storage of mixed milk (cow and buffalo milk combined). One for full cream milk. One toned milk. one for standardized milk. And the remaining two for separated skim milk (butter is removed from the milk).



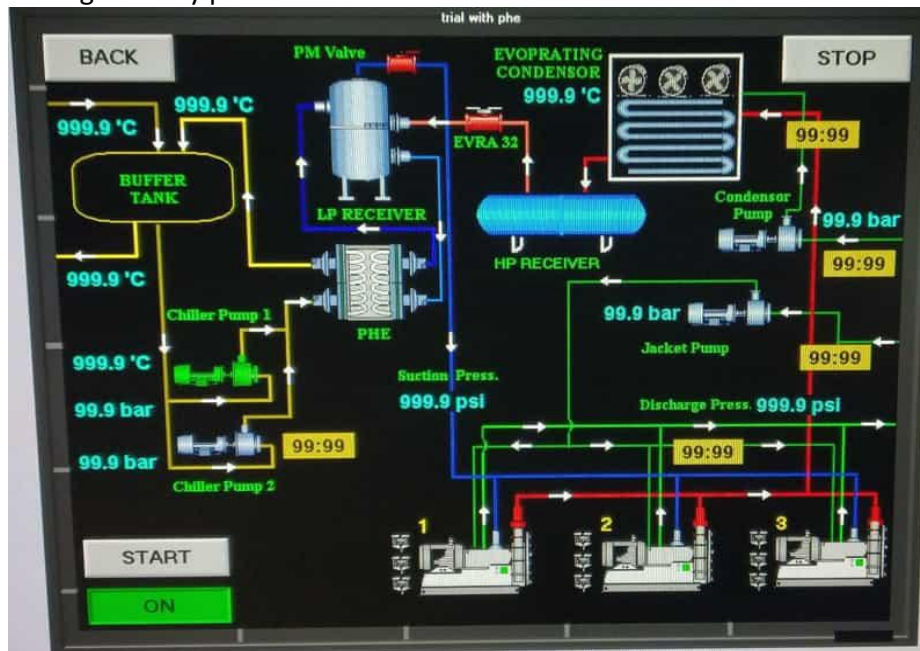
- **BALANCE TANK:**

The float control balance tank maintains the milk flow at a constant. It generally has a sensor to maintain the flow of milk. It also receives the milk from flow diversion value (FDV) When the pasteurization occurs improperly.

- **PROCESS CONTROL ROOM (PLC AND SCADA)**

PLC and SCADA are both used to monitor and control equipment in process automation across many different industries, such as telecommunication, water and waste control, energy, oil and gas, and transportation.

In this plant, PLC and SCADA systems are used to control all the operations, mainly opening and closing of every pneumatic valve.



• PRODUCTION SECTOR:

PASTEURIZATION:

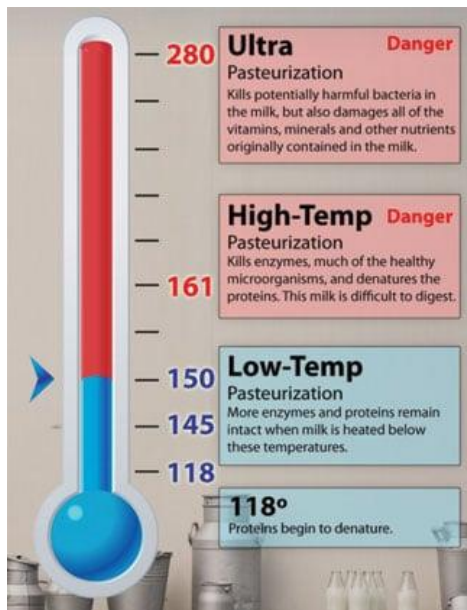
The process of heating milk to 78°C - 2°C and cooling to below 50° C. Heating of milk to 78°C and holding it for 15 sec kills the harmful bacteria in it.

Maintaining at 5°C can improve the self-life of milk and prevent the growth of harmful bacteria.

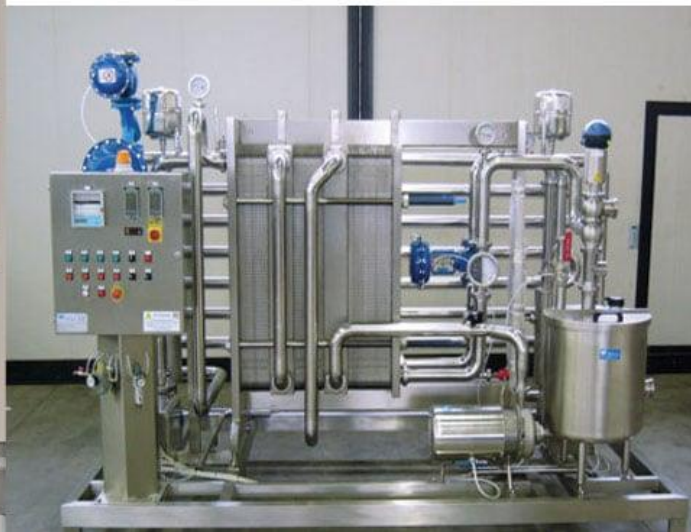
PASTEURIZER:

The pasteurizer has 5 section namely,

- ❖ Heating
- ❖ Regeneration
- ❖ Cooling section
- ❖ Holding coil



Milk Pasteurization



• CLEANING IN PLACE SECTION:

In order to ensure that all contaminated contact surface are cleaned to acceptably high and consistently reproducible standards, cleaning – in- place (CIP) Involves the circulation or recirculation of appropriate water rinses and chemical cleaning and sanitizing solution through plants and equipment that are kept in the assembled state.

• DUPLEX FILTER:

Duplex filter is used to filter the foreign matter present in milk. Here the duplex is placed after regeneration-1 to improve the quality of filtration (increased temperature of milk after the regeneration-1 process, promotes good filtration).

• HOMOGENIZATION:

It is the process of breaking fat globules at even size (2p). Homogenization occurs after regeneration -2 at 45°C. Hence the milk is forced through a small passage at high pressure.

It has 2 stage.

Stage 1:1500psi

Stage 2:500psi

It has 3 high speed pistons to break the fat molecules.

• FLOW DIVERSION VALUE:

It is to prevent the unpasteurized milk. It is a 3-way valve. It returns the unpasteurized milk to balanced tank to make it pasteurized since it cannot allow milk to the packing area.

- **TRIBLENDER:**

Tri blenders are used to mix dry SMP powder with a liquid in a continuous basis. It uses a centrifugal pump as the primary drive for the mixing and the infeed of the both liquid and the dry powder.

- **BUTTER MELTING VAT:**

Butter melting vat is used by people for melting butter owing to its operational fluency and temperature resistant design. Its coverts butter oil. The butter oil gets filtered and joins the homogenization process.



- **RO (REVERSE OSMOSIS) PLANT:**

Plant capacity production is 10kl per hour purpose the of RO plant is to reduce the scale forming and to allow contamination.

RO water is used for:

- ❖ Solar panel
- ❖ Processing
- ❖ UHT plant
- ❖ Boiler

- **BOILER HOUSE:**

A boiler, often known as a steam generator, is a machine that uses heat to turn water into steam. Depending on the need, different boilers are used to produce different forms of steam, including wet steam, dry steam, and super- heated steam. This, location generates steam that is used for pasteurization among other things.



• REFRIGERATION SECTION:

The dairy business depends heavily on its refrigeration system. Various refrigeration system types are employed depending on factors like size, application, design, capacity, etc. The compressor, condenser, expansion valve, and evaporator are the parts of the refrigeration system vapour our compression refrigeration is the basis of refrigeration. The workforce needed to transfer heat from a low- temperature body to a high- temperature body is provided by the compressor.



• PREPACKING SECTION

one Prepack machine is specially designed for filling 5 litres pouch. Each of the these prepack machine have overhead mini tank with a holding capacity of 40 litres which gravity feeds milk into the pouches via nozzle. Pasteurized milk stored in silos is pumped to prepack overhead tanks each with a capacity of 15000 litres prior to sachet.

A plate chiller is installed en-route to maintain the temperature of milk well below 5° C. The quality parameters of pasteurized 37 milk like COB, MBR time, acidity, fat SNF are tested prior to filling in pouches to assure its quality. Samples are acquired every one hour during sachet to keep a check on the keeping quality of milk.

• FILM:

Per day film usage 8 tons

Film thickness:

63 microns for half litre film 110 microns for 5 litre film.

Empty film thickness:

A mini sachet (225ml)-1.9g

A half-litre sachet -2.7 to 2.9g

one litre sachet- 4.5g

A five-litre sachet 28g

MILK SACHET VARIETIES:

- Double toned milk: half litre sachet
- Toned milk: half and one litre sachet
- Standardized milk: 5 litter, half litre and 225 ml sachets.
- Full cream milk: half litre sachet

• PACKAGING SECTION:

- ❖ FULL CREAM MILK: (FAT 6% AND SNF 9%)
- ❖ TONED MILK: (FAT 3% AND SNF 8.5%)
- ❖ STANDARDIZED MILK: (FAT 4.5% AND SNF 8.5 %)
- ❖ DOUBLE TONED MILK: (FAT 1.5% AND SNF 9%)
- ❖ DELITE MILK: (FAT 3% AND SNF 8.5%)
- ❖ TEA MATE MILK:(FAT 6.5 % AND SNF 9.0%)



EFFLUENT TREATMENT PLANT:

Oil, sludge, grease, and other pollutants can contaminate water, which can be treated using the ETP mechanism and method. This method is intended to clean industrial wastewater so that it can be reused or safely dumped into the environment. The effluent treatment plant is utilised to purify water used in the dairy industry's butter, powder, packaging, loading, and tray wash sections as well as tanker cleaning.

Tests done in ETP:

Chemical oxygen demand (COD)

Biochemical oxygen demand (BOD)

Mixed liquid suspended solids (MLSS)

Total suspended solids (TSS)

Total dissolved solids (DTS)

Oil and grease PH Dissolved oxygen (DO)

Volatile fatty acid (VFA) Chlorine Sulphuric.

NOTE:

Chemicals added in aeration tank urea, DAP, etc. if it is necessary.

ADVANTAGES:

1. ETP converts wastewater into clean & safe water and it saves us money.
2. It protects our environment from pollution and ETP eliminates the need to transport clean water.
3. It protects humans from various diseases caused by wastewater.
4. ETP helps in minimizing waste and It saves water by recycling the old or polluted water.



AERATION TANK



RAS TANK



EQUALIZATION TANK



SLUDGE DISPOSAL

ULTRA-HIGH-TEMPERATURE HEATING TREATMENT:

UHT stands for “Ultra High Temperature Processing,” which is just another way of heating milk to kill bacterial spores. In the pasteurization process, the milk is heated to 72°C (161.6°F) for at least 15 minutes, whereas the UHT process heats the milk at 135°C (275°F) for one to two seconds. This flash of extreme heat is said to kill off any spores in the milk. After the milk is heated to a temperature of 140 C, the milk is passed through the holding tube for 2 seconds. The milk is immediately cooled by 2°C to prevent any off- flavour development. The milk passes through the DTHE to gradually get cooled to 30°C.

The process then enters the packaging section which is maintained under aseptic conditions. The 92-micron 9-layered pouches are rinsed with Hydrogen

Peroxide solution to maintain sterility. Excess H₂O₂ is removed by rubber strips present inside the machine. The processed milk would be packed in tetra packs of 200mL, 500mL, and one litre. The packaged milk is tested for its properties. UHT milk tastes different than its pasteurized milk, it tastes like it comes from a box and it tastes burnt. The processed milk has a shelf life of **90 days** and the **packets need not be preserved in refrigerators.**



UHT MILK PACKET



UHT PLANT IN AAVIN

SOLAR WATER HEATING UNIT (CST):

Water fed to the boiler is heated using solar water heating system heating system. Water from the soft water tank is circulated through tubes underneath the solar heating panels where the temperature is raised around 65°C, the heated water is stored in feed water tank from where it is pumped to the boiler. There are two feed water tanks catch with holding capacity 10,000 litres. The main advantage of using solar heating system is reducing in fuel consumption.

QUALITY CONTROL LABORATORY

- ✓ ORGANOLEPTIC TEST
- ✓ TEMPERATURE
- ✓ CLOT ON BOILING TEST
- ✓ METHYLENE BLUE REDUCTION TIME TEST
- ✓ FAT
- ✓ SOLID NOT FAT
- ✓ CORRECTED LACTOMETER READING
- ✓ ACIDITY
 - ✓ HARDNES OF WATER TEST
- ✓ ADULTERANTS TEST

- ✓ STANDARD PLATE COUNT
- ✓ SWAB

PRELIMINARY TEST

ORGANOLEPTIC TESTS

1) ODOUR:

The raw milk should be free of any unpleasant smell such as acidic smell. Normal milk should not have any off -or unnatural smell in it. If the smell is slightly sour, the milk might have undergone microbial deterioration.

2) TASTE:

The milk should be free of unpleasant taste. Adulteration of milk with salt, sugar, etc. can also be detected by taste ,and if found positive must be rejected.

3) APPEARANCE:

The raw milk should be free from any foreign matters and off-colors. Normal milk should be free from these. The presence of visible dirt, straw, or manure indicates that milk has been handled in an unhygienic way. The color of the milk of cows and sheep should be slightly yellowish-white and that of buffaloes and goats absolutely white. If the color is reddish, the milk may contain blood; if it is yellowish, it may contain pus. Such milk may be secreted from the infected udder (mastitis) and should not be accepted.

4) TEMPERATURE:

The temperature of the milk sample is checked using a thermometer. The temperature of the received milk should not exceed 8-9°C.

CLOT ON BOILING (COB)

- Take 5 ml of milk in a sterilized test tube.
- Heat it for just boiling and observe clotting on the side of the tube.
- When the whole of the milk clots to be adhering to the

sides of the tube the result can be recorded as "positive".

- If clots are absent the result shall be recorded as negative.

- Remark COB positive milk is not accepted for processing.

The removal of the oxygen from milk and the formation of reduction substances during bacterial metabolism causes the color to disappear.

STANDARDS FOR RAW MILK:

METHYLENE BLUE REDUCTION TIME (MBRT)

Methylene blue dye is prepared by dissolving 1 tablet of standard methylene blue

tablet in 200ml of cold, sterile, distilled water in a sterile flask. Allow to stand for

an hour and ensure the complete dissolution of the tablet. This is further diluted

with 600ml of sterilized distilled water and kept as a stock solution.

PROCEDURE:

- Take 10ml of milk in a sterilized test tube.

- Add 1ml of MB dye to get a concentration of 1 part of dye to 300000 parts of milk and plug with a sterilized cork.

- Invert the tube to mix the contents and incubate at 37°C in a water bath.

- The color of milk in the tube is examined first 10 minutes and then every half an hour and the time required for complete decolorization is noted.

- Incubate two control tubes with each batch consisting of

- a) 10 ml of milk mixed with 1ml of methylene blue solution.

- b) 10ml of milk mixed with 1 ml of water.

- Immerse both tubes in boiling water 3 minutes to destroy the natural reduction of the milk.

- Comparison of tests with (a) Will show when decolorization is beginning and comparison with (b) will show it is complete.



Fig. 2: MBRT and Clot Formation

MBRT TIME IN HOURS	QUALITY OF MILK
5 Hours and above	Very good
3-4 Hours	Good
1-2	Fair
½	Poor
Less than 10 mins	Not accepted

ACIDITY TEST

- The clean conical flask is taken and 10 ml of thoroughly mixed milk sample is added.
- 10 ml of distilled water is added and a few drops of 2 percentage phenolphthalein solution is added.
- The mixture is titrated against 0.1N NaOH filled in the burette. The titrated reading is note down at the appearance of pale color.



Calculation:

Percentage of acidity in milk = $\frac{M \cdot N \cdot V}{W}$

Where the M- Molecular weight of NaOH

N – Normality of NaOH

V – Volume of NaOH

W – Weight of NaOH

Note: Fresh milk contains 0.1 percentage to 0.11 percentage of existing acidity due to the presence of milk proteins etc. milk acidity will increase due to the presence of micro-organisms (developed acidity). The milk will be started to clot at the boiling when milk's total acidity reached 0.17 percentage to 0.18 percentage. The milk acidity below 0.16 percentage is fit for processing and for products it should be below 0.14 percentage.

HAEDNES OF WATER TEST:

Hardness in water is due to the presence of dissolved salts of calcium and magnesium. It is unfit for drinking, bathing, washing and it also forms scales in boilers. Hence it is necessary to estimate the amount of hardness producing substances present in the water sample.

As water plays a major role in dairy industry, hardness of water will check every 6 hours of softening process. Samples like raw water, RO water, sump water, boiler water will be taken for analysis.

Procedure

- The burette is filled with standard EDTA solution to the zero level.
- Take 50ml sample water in flask. If sample having high Calcium content then take smaller volume and dilute to 50ml.
- Add 1ml Ammonia buffer followed by 5 to 6 drops of Erichrome black - T indicator. The solution turns into wine red colour.
- Note the initial reading then titrate the content against EDTA solution.
- At the end point colour change from wine red to blue colour.
- Note the final reading and record it. Repeat the process till we get concordant value.



HARDNESS OF WATER BY EDTA METHOD

Other Parameters of water

It is also necessary to calculate the other parameters of water like pH, TDS (Total Dissolved Solids) etc., pH is calculated using both pH paper and pH meter, and TDS is calculated using conductivity meter.

DETERMINATION OF FAT BY GERBER METHOD:

PROCEDURE

- Take 10 ml of Gerber acid (90 percentage sulfuric acid in a butyrometer.
- Add 1ml of amyl alcohol ($C^*H-\{3\} - C^*H-\{2\}-CH(2)CH(2)CH(3)$) + close the neck with a stopper.
- Mix the contents thoroughly until the curd has dissolved.
- Transfer the butyrometer into a water bath of 65 degrees c+2°c and keep it for 5 mins.
- Dry the butyrometer into a centrifuge for centrifugation at 1100ppm for 5 mins.
- Take the butyrometer and place it in the water bath of 65°c + 2 degrees c and keep it for 5 mins.
- The scale of separation of fat and acid gives the percentage of fat.

Note: For raw milk minimum fat is 3.0 percentage below will be confiscated.

CORRECTED LACTOMETER READING (CLR)

- Adjust the temperature of the milk sample to 84°F Mix the milk gently by pouring it several times from one bottle to another avoiding the incorporation of air. Fill the lactometer cylinder with the milk sample Allow the lactometer to float freely on the milk without touching it. The sides of the cylinder. Ensure some quantity of milk overflows the cylinder when the lactometer is inserted. Allow the lactometer to come to rest and then take the visible lactometer reading.



SOLID NOT FAT (SNF)

Take the average of the two visible lactometer readings, modified RICHMONDS formulae:

$$\text{SNF} = \text{CLR}/4 + (0.2 * \text{FAT}) + 0.36$$



BUTRIYOMETER

PHOSPHATE TEST:

The manufacture of milk that is safe and pathogen – free depends on the pasteurization process. An enzyme called alkaline phosphate is naturally found in milk, but it is destroyed at a temperature that is very close to the pasteurization temperature. When determining whether milk has been effectively pasteurized or whether it has been tainted with raw milk after pasteurized, the alkaline phosphate test is utilized. This test is based on the idea that, at an alkaline pH, the alkaline phosphatase enzyme in raw milk releases phenol from a disodium para-nitro phenyl phosphate and creates a complex that is yellow in color. The amount of yellow color created is inversely related to the enzyme's activity.

- 3.5g of sodium carbonate and 1.5g of sodium bicarbonate are weighted and dissolved in 1liter of distilled water and the solution is sterilized, which serves as a buffer.
- 1.5g of p-nitro phenyl disodium orthophosphate is added to the buffer and acts as A substate.

- 1 ml of milk sample is taken in a test tube. 5 ml of the above prepared buffer is added to the milk sample.
- The test tube is placed in a water bath maintained at 37 degrees c
- The appearance of yellow color confirms the presence of phosphatase enzyme indicating an improper pasteurization process.

ADULTERATION TESTS:

SUGAR:

- Take 5ml of milk in the test tube.
- Add .1ml of conc. HCl.
- Add 0.1g of resorcinol powder and mix thoroughly.
- Place the test tube in boiling water bath for 5 mins.
- Withdraw the tube and observe the color.
- Appearance of deep red color indicates presence of sucrose or ketose sugar.

STARCH:

- Take 5 ml of milk in a test tube.
- Bring to boiling condition and allow test tube to cool to room temperature.
- Add 1-2 drop iodine solution to test tube dissolve 1.3 gm of iodine and 1.5 gm of potassium iodine in sufficient distilled water and make up to 100 ml.
- Development of blue color indicates the presence of starch which disappears when the sample is boiling and appears on cooling.

UREA:

- Take 5 ml of milk in a test tube.
- Add 5 ml dimethyl amino benzaldehyde and dissolve 1.6 gm of p-dimethyl amino benzaldehyde in 100 ml of 10 percentage HCl.
- Distinct yellow color is observed in milk containing added urea shows a slight yellow color due to the presence of natural urea.

SALT (SODIUM CHLORIDE):

- Take 2 ml of milk in a test tube.
- Add 1 ml of 5 percentage potassium chromate.

- Add 2 ml of 0.1 N silver nitrate.
- Appearance of yellow color indicates presence of dissolved chloride.

MOLTO DEXTRIN:

- Take 5 ml of milk in a test tube and add equal vol of 10 percent acetic acid the milk will curd.
- Filter it and take 1 ml of filtrate in a test tube and add a few drops of orcinol.
- Appearance of brown color indicates the presence of molto dextrin.

NEUTRALISERS:

- Rosenbach acid test for the presence of carbonate.
- Take 5 ml of milk in a tube and add an equal vol of 95 percent alcohol.
- Add red color indicates the presence of alkali.
- Normal milk shows only a brownish color.

HYDROGEN PEROXIDE:

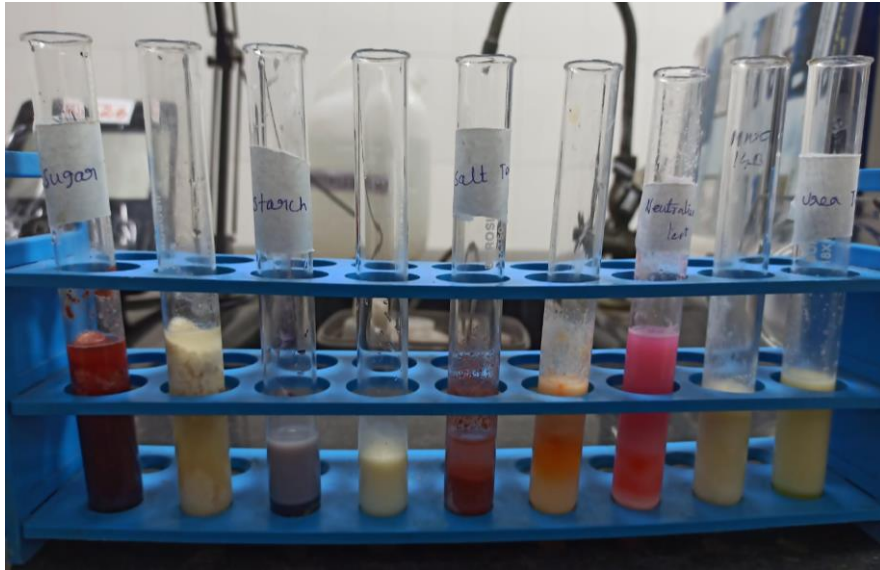
- Take 10 ml of milk in a test tube.
- Add 5 drops of 2 percent phenylene diamine hydrochloride.
- Mix thoroughly and observe the color.
- Development of an intense blue color shows the presence of hydrogen peroxide.

FORMALDEHYDE:

- Take about 10 ml of milk in a test tube.
- Add 0.5 ml of ferric chloride solution.
- Add carefully about 1 ml of conc H_2SO_4 .
- Down the side of the test tube in such a way that it forms a separate layer at the bottom of the test tube without mixing with the milk.
- Development of violet or blue color at the junction of the two liquids indicates the presence of formaldehyde.

AMMONIUM SULPHATE:

- Take 1 ml of milk and add 0.5 ml of 2 percent sodium hydroxide.
- Add 0.5 ml of 2 percent sodium hypochloride.
- Add 0.1 ml of phenol solution and heat for 20 mins in a boiling water bath.
- Bluish color turns deep blue indicates presence of ammonium sulphate.



AUTOMATIC TESTING MACHINE

MILK O SCAN MINOR:

USAGE: Measure the fat, SNF, and protein in a raw milk and pasteurized milk.

Milk o scan analyses the product using the absorption of different wavelength the of "INFRARED" spectrum to detect the presence of specific parameter in milk like fat, SNF, auto cleaning and auto zero setting.



MILK O SCREEN:

USAGE:

- Measure the fat, SNF, and adulteration in raw milk.
- Fourier transform infrared, spectroscopy technology

PRINCIPLE:

- Milk O Screen analysis the product using FT- infrared technology, assessing milk constituents, using absorption at different wavelengths in

the in the infrared spectrum to detect the presence of specific parameters in milk like fat, SNF, and protein

- FTIR technology offers unique ability to screen milk for adulterants. Natural raw milk has particular spectrum like a unique finger print. Fourier Transform Infrared spectrum of absorbing or emission of a solid, liquid or gas.
- The milk o screen detects milk parameters fat, SNF, protein and adulteration like added water, maltodextrin, ammonium, sulphate, sucrose, urea, presence of other absorbing adulterants is displayed as abnormal milk.

CONCLUSION

- On the whole, this internship was a useful experience. I have gained new knowledge, skills and met many new people. I achieved several of my learning goals and got insight into professional practices currently advocated in the industry. Related to our study I learned more about the manufacturing of milk. Furthermore, I have experienced that it is of importance that education is objective and we have to be aware of the industrial aspect of the topics I study. This internship program was not one sided, but it was a way of sharing knowledge, ideas and opinions. The internship was also good to find out what our strengths and weakness are. This helped us to define what skills and knowledge we have to improve in the coming time. I can confidently assert that the knowledge gained through this internship is sufficient to contribute towards our future endeavours. At last, this internship has given us new insights and motivation to pursue a career in core Dairy technology.