

"Dissemination of Education for Knowledge, Science and Culture"
- Dr. Bapuji Salunkhe



Shri Swami Vivekanand Shikshan Sanstha's
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

PG - Department of Microbiology



CERTIFICATE OF "ON JOB TRAINING"

This is to certify that Name of student Attar Taisina Sajjan (Exam seat no. 836568) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for M.Sc. - Part- I Semester II course in On Job Training (Sub code - OJT2IMBT21) and this report represents his/her bonafide work in the year 2023-2024.

Place: Kolhapur

Date: 15/5/2024

Smali

Examiner

Smali

OJT In charge

GR

HC HEAD
Coordinator
DEPARTMENT OF MICROBIOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
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PG - Department of Microbiology



(स्वायत्त) कोल्हापूर

CERTIFICATE OF "ON JOB TRAINING"

This is to certify that Name of student Jangam Bhagyashree Sanjay (Exam seat no. 836577) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for M.Sc. - Part- I Semester II course in On Job Training (Sub code - OJT21MBT21) and this report represents his/her bonafide work in the year 2023-2024.

Place: Kolhapur

Date: 15/5/2024

Smali
Examiner

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OJT In charge

Q
HC HEAD
DEPARTMENT OF MICROBIOLOGY
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(स्वायत्त) कोल्हापूर

CERTIFICATE OF "ON JOB TRAINING"

This is to certify that Name of student Kesare Ankita Bhagwan (Exam seat no. 836569) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for M.Sc. - Part- I Semester II course in On Job Training (Sub code - OJT2IMBT21) and this report represents his/her bonafide work in the year 2023-2024.

Place: Kolhapur

Date: 15-05-2024

Smali
Examiner

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OJT In charge

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PC HEAD
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PG - Department of Microbiology



(स्वायत्त) कोल्हापूर


CERTIFICATE OF "ON JOB TRAINING"

This is to certify that Akshata Ananda Parit (Exam seat no. 5428) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for M.Sc. - Part- I Semester II course in On Job Training (Sub code =) and this report represents his/her bonafide work in the year 2023-2024.

Place: Kolhapur

Date: 15/05/2024


Examiner


OJT In charge


Jc Head
DEPARTMENT OF MICROBIOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

OJT Report, PG Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous)

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VIVEKANAND COLLEGE, KOLHAPUR
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PG - Department of Microbiology



CERTIFICATE OF “ON JOB TRAINING”

This is to certify that Name of student Patil Sakshi Bhauso (Exam seat no. 836571) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for M.Sc. - Part- I Semester II course in On Job Training (Sub code - OJT21MBT21) and this report represents his/her bonafide work in the year 2023-2024.

Place: Kolhapur

Date: 15/05/2024

Smali

Examiner

Smali

OJT In charge

[Signature]
HC HEAD
DEPARTMENT OF MICROBIOLOGY
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(स्वायत्त) कोल्हापूर

CERTIFICATE OF "ON JOB TRAINING"

This is to certify that Name of student Patil Vaishnavi Hanamant (Exam seat no. 836572) has satisfactorily carried out the required practical work prescribed by the BoS Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for M.Sc. - Part- I Semester II course in On Job Training (Sub code - OJT21MBT21) and this report represents his/her bonafide work in the year 2023-2024.

Place: Kolhapur

Date: 15/05/2024

Smali

Examiner

Smali

OJT In charge

GI

HC HEAD
DEPARTMENT OF MICROBIOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

A

On Job Training report

In Collaboration with

Name of Industry and address

JYOTIRLING MILK FOODS WADICHARAN
Wadicharan Post Bambavade
Tal Shahuwadi Dist Kolhapur

And

PG Department of Microbiology
Vivekanand College, Kolhapur (Empowered Autonomous)

By

Name of student

PATIL SAKSHI BHAUSO
M. Sc. Microbiology
Part I Semester I

Under the Guidance of

Dr. S. D. Mali

PG Department of Microbiology

“Dissemination of Education for Knowledge, Science and Culture”
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Place: Kolhapur

Date: 15/05/2024

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Smali

OJT In charge

[Signature]

HC HEAD
DEPARTMENT OF MICROBIOLOGY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

DECLARATION

I the undersigned hereby declare that the On Job Training Report in Collaboration with Name of industry Jyotirling Milk Foods Wadicharan and PG Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) is an original work done by me under the guidance of Dr. S. D. Mali , PG Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous). The matter included in this report is not a reproduction from any other sources.

I also hereby declare that this project has not been submitted to any time to any other university or institution for the award of any degree or diploma.

Date: 15/05/2024

Place: Kolhapur

Sakshi Patil

Name of student

Patil Sakshi Bhauso

ACKNOWLEDGEMENT

At this juncture where the herculean task is nearing its pinnacle, science deems it a pleasure to look back and acknowledge efforts and support of all kith and kin that helped with zeal to turn a distant dream of an industrial training into reality.

We are extremely thankful to Dr. S. D. Mali, Assistant Professor, PG Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous), project guide for her valuable guidance and mentorship throughout this project work given to us during the study.

We are indeed grateful to Faculty Coordinator (OJT) Dr. G. K. Sontakke, PG Department of Microbiology, Vivekanand College, Kolhapur (Empowered Autonomous) for his kind co-operation and valuable support and we are also thankful to all the staff members of our department for their direct and indirect support.

We are thankful to Principal Dr. R. R. Kumbhar, for his kind co-operation and valuable support.

Also, we sincerely thank our parents for helping us in all aspects to complete the project work. Finally, we would like to appreciate our friends, colleagues for their direct and indirect contribution.

Date:

Place: Kolhapur




Name of student

Patil Sakshi Bhauso

INTERNSHIP UNDERTAKING

1. Student Name	Patil Sakshi Bhauso
2. Current Address	At Post Bhedasgaon, Tal Shahuwadi Dist Kolhapur
3. Residence Address	At Post Bhedasgaon, Tal Shahuwadi Dist Kolhapur
4. Email id	patilsakshi4679@gmail.com
5. Mobile Nos.	9552104317
6. Aadhar	533313801494
7. PAN	
8. Overall GPA	
9. Internship /Area (Company/Institute)	Jyotirling Milk Foods Wadicharan Taluka Shahuwadi Dist Kolhapur

I confirm that I agree with the terms, conditions, and requirements of the Internship Policy

Student Signature: 

Date: 15/05/2024

I confirm that the student has attended the internship orientation and has met all paperwork and process requirements to participate in the internship program, and has received approval from his/her mentor.

Sign of Department Faculty Coordinator

Date



SUDHIR

जोतिर्लिंग मिल्क फुडस्

गट नं. ३०७, मु. वाडीचरण, पो. बांबवडे, कोकरुड रोड,
ता. शाहवाडी. जि. कोल्हापूर. पिन. ४९६ २९३



जाचक क्रं : २५०, डॉ. २-११.००२७ | २०२३-२४

दिनांक : / / २०१

TO WHOMSOEVER IT MAY CONCERN

CERTIFICATE

This is to certify that,

Miss. Sakshi Bhauso Patil student of *Vivekanand College, Kolhapur* has completed In - plant Training in Q.C. and Process Section of our Organization from **4th January to 13th January 2024**. During the Training Period She was found sincere and hard working .

We wish her all the success in future and best of luck .

DATE : 31th Jan, 2024

PLACE : Wadicharan

Manager

जोतिर्लिंग मिल्क फुडस्
वाडीचरण, पो. बांबवडे ता. शाहवाडी.

Company Profile :

Name : JYOTIRLING MILK FOODS, WADICHARAN

Address : Wadicharan, Post- Bambawade, Tal-Shahuwadi,

Dist : Kolhapur

Email : jyotirlingmilk@gmail.com

Year of Establishment : 2009

Daily Milk Procurement : 55000-60000 lit/day

In 2009 dairy plant started with 400 lit milk collection per day. And now it has increased upto 55000-60000 lit of milk collection per day.

INTRODUCTION :

WHAT IS MILK PROCUREMENT?

A] DESIGN OF FARM DAIRY PREMISES

The first step in preserving the quality of milk must be taken at the farm. Milking condition must be as hygienic as possible, the milking system designed to avoid aeration. The cooling equipment correctly dimensioned. To meet the hygienic requirement, dairy farm have special room for refrigerated storage, bulk cooling tank also becoming more common are fitted with an agitator and cooling equipment. For ex. That all the should be chilled to $+4^{\circ}\text{C}$ within two hour after milking.

The milk room should also contain equipment for cleaning and disinfecting the utensils, pipe system.

B] PROCESS TO START DAIRY CO-OPERATIVE SOCIETY

➤ IDENTIFICATION OF POTENTIAL ARE

Identification of potential area for dairying is the most crucial activity of the milk pooling. The first step involve dairy co-operative society (DCS) is to identify potential area. Through secondary data and field surveys.

➤ AREA OF OPERATION

Determination of operational area is very important to setting up Dairy co-operative society.

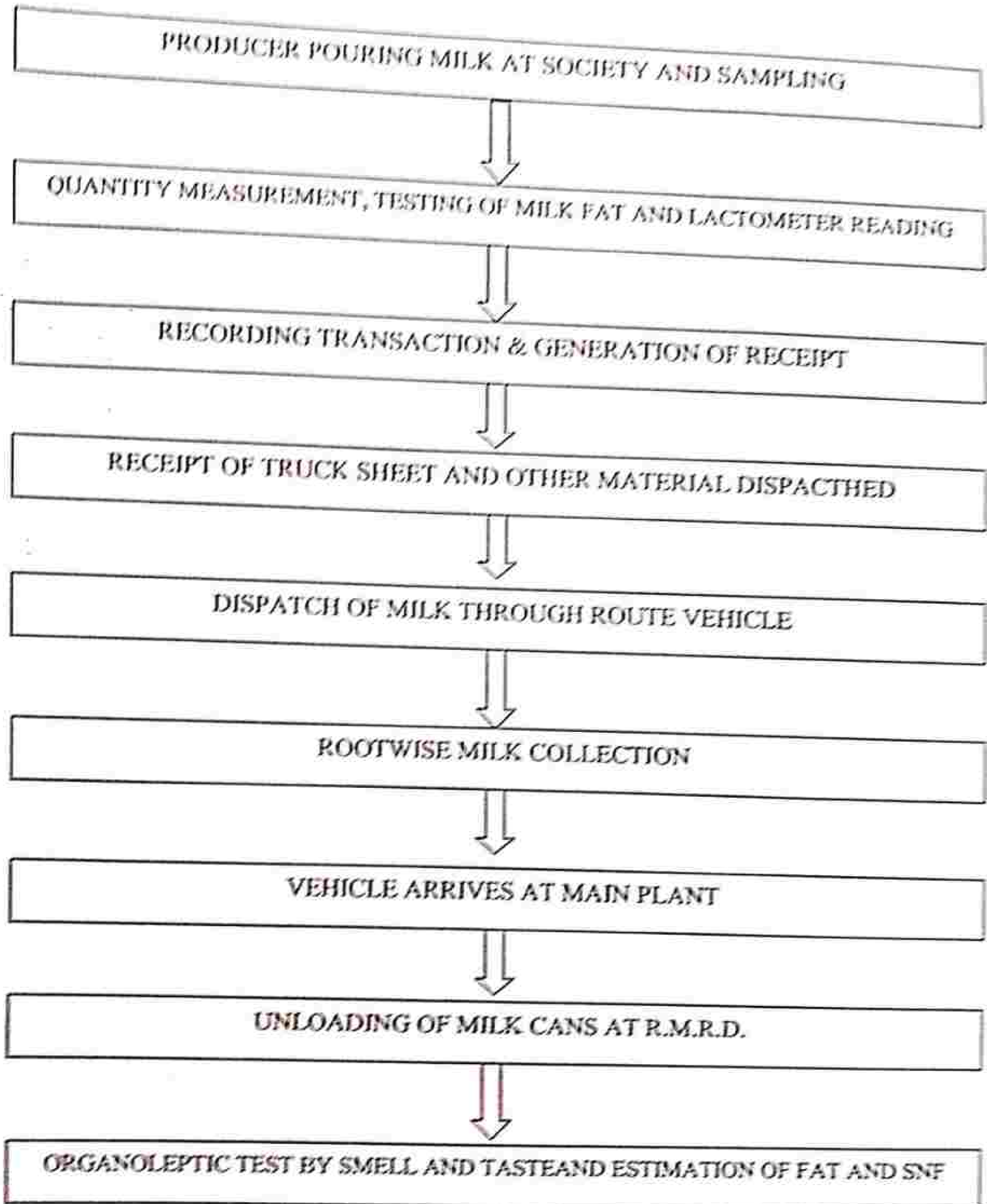
➤ ORGANISATION OF PRIMARY DAIRY CO-OPERATIVES

Survey is essential to assess the future prospects of milk co-operative society, a certain interest and faith of farmer in collective activity. While conducting a survey assess viability of starting of dairy co-operative society. Some of the crucial aspects which need to studied including existing cattle, buffalo population.

➤ TESTING OF MILK FOR QUALITY

Milk from sick animal and milk which contain antibiotics or sediment must not be accepted by the dairy. The composition and hygienic quality is determined on the basis of number of test.

Milk Procurement Process



EQUIPMENT USED DURING MILK PROCUREMENT

- Cans
- Can Washer
- Milko Tester
- Ekomilk
- Bulk Milk Cooler
- Dump Tank
- Weighing Balance
- Plunger
- Sample Bottle
- Dipper
- Milk Collection Tray

CANS :

- Cans are used to receive the milk. Capacity of each can is 40 liters.
- The cans used are of stainless steel or of aluminium.
- For identification of cow milk it is marked by black and for buffalo it is white.

CAN WASHER

- Can washing is done both mechanically and manually according to no of cans.
- Detergent solution and brushes are used for the manual cleaning.
- The mechanical can washer is power operated.
- The can washing is done with the help of detergent solution and the can is rinsed with hot water and then sterilized.
- Each can requires 1-2 min for cleaning.

MILKO TESTER

- Milko Tester is an essential instrument for the measurement of milk fat.
- Percentage of milk fat content is displayed quickly and accurately on a digital readout.
- Milko tester works on principle of photometric measurement of light scattered by the fat globule present in milk sample.

EKO TESTER

- The device gives highest accuracy and the best result for milk sample.
- Parameters : Fat, protein, lactose, total solid, SNF, density, water %.
- Features :
 1. Automatic cleaning.
 2. Automatic zero setting.
 3. Easy and cost effective.
 4. Analysis of cold sample.

- Application :
 1. Cow Milk
 2. Skim Milk
 3. Buffalo Milk

BULK MILK COOLER

- Bulk Milk Cooler are used extensively for cooling milk at the chilling center.
- It is a stainless steel insulated tank fitted with agitator and refrigeration system.
- Milk when pumped into this tank circulated till it reaches less than 4⁰c.
- Because of insulation temperature is maintained.

WEIGHING BALANCE

- It is used for weighing the milk.



DUMP TANK

- It is used for dump the milk.
- A strainer is provided on the top of this tank to remove the extraneous matter from milk.

PLUNGER :

- It is used for mixing all constituents of milk for sampling.
- Stainless steel milk plungers are manufactured by using stainless steel 304 grade material.
- These stainless steel plungers are used for milk cans and milk tankers.

SAMPLE BOTTLE :

- Capacity of sample bottle is 125 ml. for collecting the sample for chemical analysis.
- Milk sample bottle made from HDPE (plastic) are of white colour.

MILK COLLECTION TRAY :

- After dumping the can into weighing tank can is placed in inverted position on milk collection tray for left down of remained milk.

PLATFORM TEST :

- Organoleptic test
- Clot on Boiling
- Methylene Blue Reduction Test
- Alcohol test
- Gerber fat test
- Acidity test
- Lactometer test

- Adulteration test

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- Organoleptic test
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ORGANOLEPTIC TEST :

- Odour/Smell
- Taste
- Colour
- Temperature
- Visual appearance



CLOT ON BOILING :

1. Take a test tube
2. Add 5 ml. milk
3. Boil it for 5 minutes
4. If milk gets clotted then test will be positive
5. Then this milk is rejected

METHYLENE BLUE REDUCTION TEST :

1. Take a MBRT tube
2. Add 10 ml. milk
3. Add 1 ml. methylene blue solution
4. Invert it for 2-3 times
5. Hold it in incubator/Water bath at 37⁰c
6. Observe if after every 30 minutes

Sr.No.	Time Required	Quality
1.	Below ½ Hr.	Poor
2.	1 to 2 Hr.	Fair
3.	3 to 4 Hr.	Good
4.	Above 5 Hr.	Very Good

ALCOHOL TEST :

1. Take a test tube
2. Add 5 ml. milk in test tube
3. Add 5 ml. ethyl alcohol (68%)

4. Invert it for 2-3 times
5. If any formation of clot then test will be positive
6. If clots are not formed then test will be negative



GERBER FAT TEST :

1. Take a butyrometer
2. Add 10 ml sulphuric acid
3. Add 10.75 ml. of milk sample
4. Add 1 ml of amyl alcohol
5. Close the butyrometer with stopper
6. Shake well
7. Centrifuge it at 1100 rpm for 5 minutes
8. Observe the fat %



ACIDITY TEST :

1. Take 0.1 N NaOH in burette
2. Take 10ml milk in conical flask
3. Add 2-3 drops of phenolphthalein drops
4. Titrate with naoh solution from the burette
5. Observe the reading when light pink colour is observed.
6. $\text{Acidity} = 9 * V(\text{ml}) * N / W$

LACTOMETER TEST :

1. Heat milk upto 40°c
2. Cool it to the calibrated temperature
3. Fill the lactometer jar with milk
4. Put the lactometer in lactometer jar gently such that it will not touch the wall of jar
5. Observe the reading and record it

ADULTERATION TEST :

➤ SUGAR TEST

1. Take 10 ml milk sample in a test tube.
2. Add 5 ml of conc. HCL and 0.1g. resorcinol.
3. Place the test tube in water bath for 5 min.
4. Appearance of red colour indicates the presence of added sugar.



➤ STARCH TEST

1. Take 3 ml milk sample in a test tube.
2. After boiling it thoroughly cool it to room temperature.
3. Add 2-3 drops of 1% iodine solution.
4. Appearance of blue colour indicates the presence of starch.

➤ COMMON SALT TEST

1. Take 5 ml milk sample in a test tube.
2. Add 1 ml of 0.1N silver nitrate solution.
3. Mix the content thoroughly and add 0.5ml of 10% potassium chromate solution.
4. Appearance of yellow colour indicates the presence of added salt, whereas brick red colour indicates the milk free from added salt.

➤ UREA TEST

1. Take 5 ml milk sample in a test tube.
2. Add 5ml p-dimethyl amino benzaldehyde reagent.
3. Appearance of distinct yellow colour indicates the presence of added urea.

PROCESSING :

1) Milk Collection :

Milk collection is the one of the 1st activity of milk procedure groups. Once the milk is collected in a central location, the milk can be processed or transported to processing center. Milk should collecting within 4 hrs.of milking.

Initially quality of milk is detected by checking the odour & taste of milk & then it is filtered. In this case, if taste & odour of milk is bad then it can be rejected or further processed.

Hygiene at all stages of milk collection & processing is very important for quality & shelf life is of product. The milk is collected in clean containers then random sampling of collected milk is takes place. Sample of cow milk & buffalo milk is separately taken & samples are labeled & carefully recorded to avoid confusion.



2) Chilling :

Chilling of milk means rapid cooling of raw milk to sufficiently low temperature. So that the growth of micro organism present in milk is checked. In chilling process, the temperature of milk should be reduced to less than 10⁰c preferably 3 to 4⁰c.

Chilling is done by flowing milk from one side & chilled water from other side of the plates. In can or can immersion method, from carrying pails, the not only is the milk is cooled, but it also stays cool & a much smaller mechanical refrigeration unit is required.

3) Pasteurization :

Milk Pasteurization is the process of heating milk to a predetermined temperature for a specified period without re-combination during the entire process.

Milk in dairy industry can be pasteurized by one of the following methods.

1. Low temp. holding method :

In this method milk is heated at 62.8°C for 30 min.

2. High temp short time method :

This method is also called as flash pasteurization. In this method, milk is heated at 71.1°C for 15 to 30 sec.

3. Ultrahigh temp. sterilization :

This method, milk is heated at 141°C for 2 seconds.

4. Cream Separator :

When milk is left to stand for some time fat globules rise to the surface forming a layer of fat. This can be separated leaving behind skimmed milk as a byproduct.

5. Homogenizer :

Yellowishness of the cow milk is reduced by proper mixing of fat. Milk is put under pressure through fine nozzles, which evenly disperses fat globules. This stops the cream separating & rising to the top, allowing more consistent texture & taste.