Name- Patil Pradnya Rangrao
RollNO- 8465
Date- 11/12/2025

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We visited the OJT. (on job training) centre for/at x-metric water testing lab. the lab is located at shiye MIDC frist, we were ~~w~~ shown the lab by ma'am then they told us about the rules, OJT timing. and what work is done in the lab. They explained how water testing is carried out, which instruments and machines are used, and which chemicals are required. they also told us about the precautions to be taken during testing. After, that they showed us the water testing process and explained which tests are performed in water samples.

Date : 12/12/2025

on the second day, we performed some water tests. These are included : COD (chemical oxygen dem. and), TDS (Total Disolved solid)

COD → This is method used to measure the amount of oxygen required to oxidized wastwater or oxidized substance present in water. In this test, $K_2Cr_2O_7$ is used an oxidizing agent, then H_2SO_4, FAS (ferrous ammonium sulphate) and Ag_2SO_4 as a catalyst used. During the test, the sample is taken and heated at about 150°c for 2 hrs. After that, titration is pre formed the colour changes form yellow-green to reddish brown at the end point. then calcul^n are done to find the COD value.

formula = $COD = \frac{[A-B] \times M \times 8000}{\text{ml. of sample.}}$

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TOS → This method measures the amount of organic and inorganic dissolved substance in water, it is a fast process that measure oxygen consumption for oxidation. a water sample is taken & placed in platinum - catalyzed combustion chamber at about 900°C to 1000°C. At high temprecture, substance convert inter CO_2, H_2O, N and Nox.

formula - $TOS = \frac{[B-A] \times 1000 \times 10ml}{ml \text{ of sample}}$

Date : 13/12/2025

Alkanility test = 100 ml of sample in 250 ml & conical flask, pink, it is titrated with a standard acid sol^n. 2-3 drops of phenolop indicator if sample turns ~~colour~~ until the pink colour just dissapper, including indicating the end point for phenopthalin alkanility next, 2-3 drops of methyl orange indicator are added are added to the same flask, and titration continues until the color changes from yellow to faint pink or orange. the total valume of acid used form the beginning of the titration until the methyl orange end point is used to calculate the total Alkanity of the sample.

pH meter = switch the pH meter, then calibrate using standand buffer solution. Rinse electrode with distilled water dip the electrode in test sample sol^n & Record the pH

This is the 3rd day was a complete and test is pH meter and Alkanility test.

Date : 14/12/2025

Then, on 4th day, the samples that come to the lab were tested at that time. tests such as chloride test, calcium test.

- calcium test → 50ml of sample with 20 ml NaOH and 100-200 mg of murende indicator, titrate against 0.01m EDTA. then the end point is the colur pink to purple.
- chiride test → 50 ml of sample with 2ml of $K_2Cr_2O_7$ it titrate against 0.02 $AgNO_3$ and the end point colour is Red ring (Persistant).

formula : chloride mg/l = $\frac{ml \times 0.02N \times 1000 \times 35.5}{ml \text{ of sample}}$

Date : 15/12/2025

Holiday

Date : 16/12/2025

Then on 5th day the sample that come in the lab were tested at that time tests such as sodium test.

- Sodium : 50 ml in sample for a sodium test flame emission photometery where a water sample is aspirated into a flame and the resulting light emission at 589 nm is measured against a calibrdn curve. The procedure includes preparing standards Nacl add to 0.03 m EDTA soln end point win red (wine red to blue).

- oil and Grease → oil and grease in water are determined by acidifying a sample (pH<2) add HCl or H_2SO_4 extracting the analysis using a solvent in a saparatory funnel druing with anhydrous sodium sulfate and measuring the reside grarimetrially after solvent evaporation. This standard procedure and cooled the dish and record the weight.

formula = B A

$$\text{final wt} = \frac{\text{Intial wt} \times 1000 \times 1000}{\text{ml of sample}}$$

Date : 20/12/2025

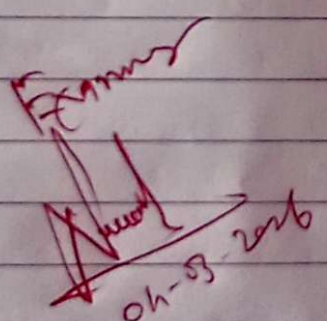
on then 8 9^{th} day ~~the~~ the samples that come to the lab were tested at that time. tests such as Turbidity ~~and~~ ~~sedi~~

- Turbidity → Turbidity in water is measured by analyzing ~~cau~~ caused by suspended particles typically using a nephelometer to provide readings in NTU or JTU. The procedure involves calibrating the instrument stand solutions to ~~es~~ enssure accuracy water sample is well-mixed but free of air bubbles light causes false, high reading chhage swich from 200 o NTU to 200 NTU).

Date : 21/12/2025

on then test day we performed water sample These are including Batch lime Alum poly.

The batch water treatment procedure using lime, alum and polymer (poly) collect a raw water sample and pour 1000 ml into each jar test beaker. measure the raw water's pH turbidity and alkanity Add a calculated dosage of lime $CaCO_2$ to raise the pH (often to a targate range of 9-5 12 for optimal precipitation in industrial cases). mix a short period flash mix the sample of high speed 1-2 minuties to ensure complete dispersion of the coagulant. Generolly lime is added first to adjust pH followed by alum them the polymer to enbance setting turbidity, hardness or color removal often employed in rime. separate the colour water layer into a different beaker and use it for forther resting (TS, TDS, COD, TSS etc).



P. R. Patil

Pradnya Rangrao Patil

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