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VISCOSITY
REDWOOD
VISCOMETER

- Aim:

To study the effect of change of tempreture on viscosity of lubricating oil by using a Redwood Viscometer no. 1.

- Objectives:

After performing the practical, the learner will be able to:

PRO1: Understand the Redwood Viscometer Apparatus for viscocity.
PRO2: Understand the viscocity of oil.
PRO3: Understand the relation between Tempreture & viscocity.
PRO4: Infer the relation between viscocity & tempreture by Graphically.

- Apparatus:

Red Wood Viscometer no. 1, stop Watch, Thermometer, Beaker, Flask, Castor oil, etc.

PRO 1:

Observations:

1] Material used as heating medium in the experiment is : Water
2] Material placed in central oil cup for Experimentation : Castor Oil.

PRO 2:

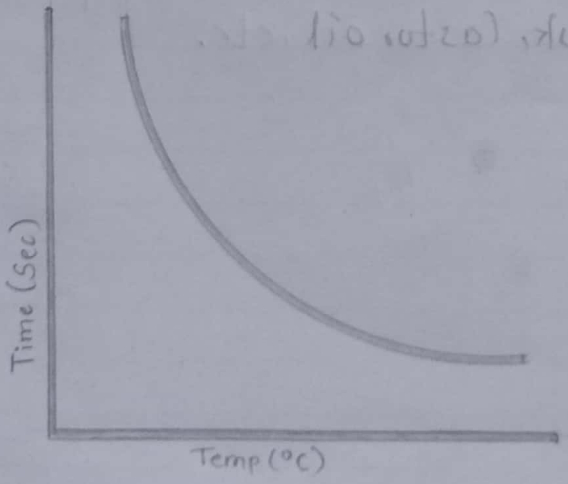
Time in Seconds at Room Tempreture : 367 (sec).

PRO 3:

Observation Table:

Obs. No.	Tempreture (°C)	Time in Seconds (Sec)	Fluctuations
1.	30.5°C [Room Tempreture]	367 sec	-
2.	50° C	99 sec	3°C
3.	60° C	72 sec	1.5°C
4.	70°C	49 sec	0.2°C

PRO 4:



- Result & Discussion:

PRO1: The instrument allows to store Castor Oil & Water in Seperate Containers & is able to Conduct a Steady Heatflow which can be tracked using Thermometers.

PRO2: The Oil at room tempreture has High Viscocity. It takes enough time to flow down from the container in which Tempreture Fluctuations can be Observed.

PRO3: It takes Less time for Oil to flow down the container for every Succesive Rise in Tempreture

PRO4: Viscocity of oil decreases with Increase in its Tempreture.

- Conclusion:

Viscosity is Inversely Proportional to Tempreture.

- Quiz:

1] What is viscosity?
⇒ Viscosity is defined as the measure of the Resistance of a fluid to gradual deformation by Shear or Tensile Stress.

2] How will you adjust the Tempreture?
⇒ Tempreture can be adjusted with a Rheostat. It gives

a Continuous Heat Supply of a Constant Tempreture Resulting in Accurate Readings.

3] What is viscosity co-efficient?

⇒ The Coefficient of viscosity is defined as the force of friction that is required to maintain a diffrence of velocity of 1 cm/sec between parallel figures of fluid. The unit is usually expressed in Poise or CentiPoise.

4] Where we should insert thermometer inside oil bath or water bath?

⇒ The thermometer should be inserted in the Oil bath as we are concerned with Tempreture of Oil. The water acts as a Heating body & its Tempreture dosen't need to be Tracked.

Precautions:

While performing the practical the learner must:
1. Ensure that oil should not slide down and fall on the ground.
2. Ensure heater & thermometer is properly arranged.
3. Ensure frequent stirring of oil to get best results.
4. Keep safe distance from the Apparatus.

Objective	PRO 1	PRO 2	PRO 3	PRO 4	Total Score
Weight Points	20	20	20	20	
Score					

Earned points (EP)= Marks in 100 = EP*20
Total Score / 80 =