

47

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CHEMISTRY TEST

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Q1) What should be the acid value and why?

→ In good lubricating oil, the acid value should be less than 0.1.

Reason: Increase in acid value should be taken as an indicator of oxidation of the oil which may lead to gum and sludge formation besides corrosion.

Q2) What is the formula for acid value?

→ Acid value:
$$\frac{\text{Value of KOH required for neutralization} \times \text{Normality of KOH} \times 56}{\text{Weight of oil sample}}$$

Q3) Define Saponification.

→ Saponification is a process that involves the conversion of fat, oil or lipid into soap and alcohol by the action of aqueous alkali.

Q4) What is formula for saponification value.

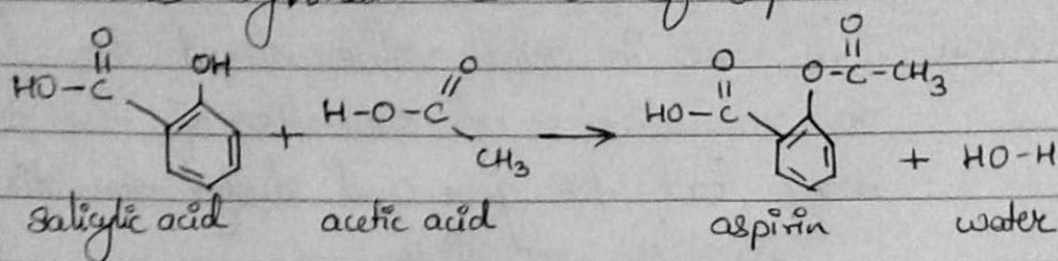
→ Saponification value =
$$\frac{\text{Value of KOH consumed} \times \text{Normality of KOH} \times 56}{\text{Weight of oil in grams}}$$

Q5) How is aspirin synthesized? Give reaction.

→ To prepare aspirin, salicylic acid is reacted with an excess of acetic anhydride. A small amount of a

strong acid is used as a catalyst here, phosphoric acid will be used as the catalyst.

Reaction: The synthesis reaction of aspirin is shown below:



Acetylation of salicylic acid to give aspirin

Q6. What is electroplating?

Electroplating is the process by which the coating metal is deposited on the base metal by passing electrical current through an electrolytic solution, containing the soluble salt of the coating metal. The base metal is made cathode. Anode is the pure coating metal.

Q7. What is the principle of Flame photometry?

Flame photometry relies on the principle that an alkali metal salt drawn into a non-luminous flame photometric analysis counts the number of photons emitted per unit time at one particular wavelength from the flame in which solution containing potassium ion is dispersed.

Q8. Write two significance of Moisture Analysis of coal.

1. Moisture reduces calorific value of coal.
2. Considerable amount of heat is wasted in evaporating moisture during combustion.
3. Coal cost is added up as water is transported at fuel price.

Q9. How unknown is determined in Flame photometry?

A calibration curve is plotted of emission intensity of solution against concentration of solution in ppm (parts per million). As emission intensity of sample is known, concentration of sample in ppm can be calculated using the curve plot.

Q10. What do you observe in the electroplating experiment?

A thin uniform coat of Zn/Cu was deposited on the iron strip.

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