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Ug. Sem - II
MTC - 6 (T)
Unit - 1

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Lucas Test of Alcohol :

Lucas reagent is a mixture of concentrated HCl and anhydrous $ZnCl_2$ (1:1).

Lucas test is used to distinguish primary (1°), secondary (2°) and tertiary (3°) alcohols based on their reaction with Lucas reagent.

Principle of Lucas test :

Alcohol reacts with Lucas reagent to form alkyl chloride, which is insoluble and produces turbidity (cloudiness).

Since, the rate of this reaction is markedly different for the three different classes of alcohols, hence the turbidity appears at different rates for the 1° , 2° , 3° alcohols.

Primary alcohol

\downarrow conc. HCl
+
 $ZnCl_2$ (1:1)
No turbidity at room temperature

Secondary alcohol

\downarrow conc. HCl
+
 $ZnCl_2$ (1:1)
Turbidity appears within five minutes

Tertiary alcohol

\downarrow conc. HCl
+
 $ZnCl_2$ (1:1)
Turbidity appears immediately

Reactivity order :



Because tertiary carbocation is most stable.