

# ETHYL ALCOHOL

[DEPTH OF BIOLOGY]

- \* It is a psychoactive substance & is principal active ingredient found in alcoholic drinks.
- \* It is naturally produced by the fermentation of sugars by yeasts or via petrochemical processes.

IUPAC Name  $\rightarrow$  Ethanol

Chemical formula  $\rightarrow$   $C_2H_6O$

Molar Mass  $\rightarrow$   $46.069 \text{ g mol}^{-1}$

Appearance  $\rightarrow$  colourless liquid

Odour  $\rightarrow$

Density  $\rightarrow$   $0.78 \text{ g/cm}^3$

[DEPTH OF BIOLOGY]

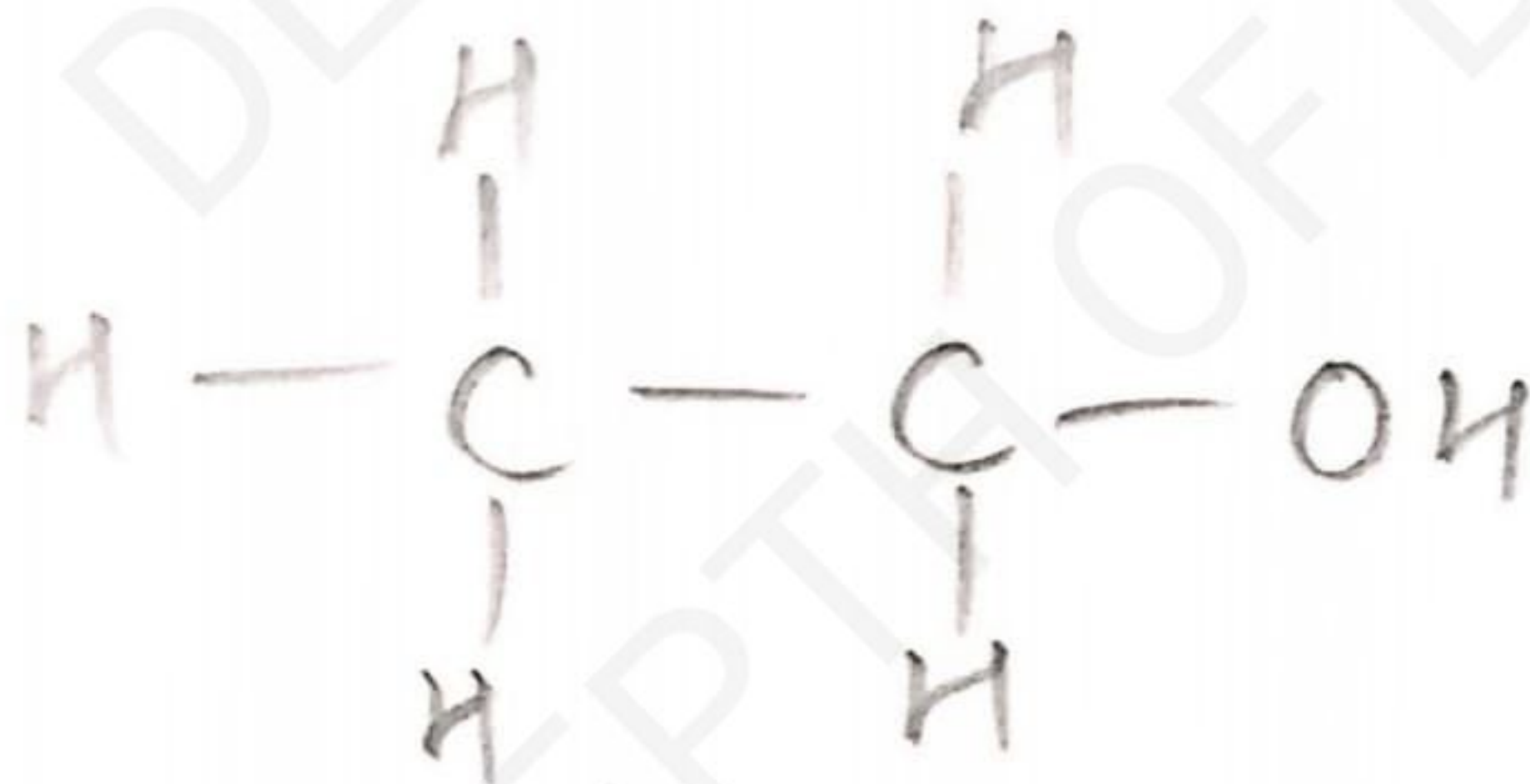
Boiling Point  $\rightarrow$   $78.24^\circ\text{C}$

Solubility in water  $\rightarrow$  Miscible

## USES

- \* It is used in Alcoholic Beverages, solvents, scents, flavorings, coloring, medicines, etc.
- \* It is used as a fuel an excellent solvent & an important raw material for making other chemicals.
- \* A mixture of ethanol & Methanol is known as methylated spirits & used in camping stoves.
- \* used as a raw material for making esters which in turn used as solvents in food flavoring & in manufacture of cosmetics.
- \* It is a toxic liquid.





Ethyl Alcohol.



# METHYL ALCOHOL

- \* It is the simplest alcohol with distinctive odour & milder-sweeter than alcohol. [DEPTH OF BIOLOGY]
- \* Also known as Wood Alcohol & is toxic.

IUPAC Name  $\rightarrow$  Methanol

Chemical formula  $\rightarrow$   $\text{CH}_3\text{OH}$

Molar Mass  $\rightarrow$   $32.04 \text{ g/mol}$

Appearance  $\rightarrow$  colourless liquid

Odour  $\rightarrow$  Ethanol like

Density  $\rightarrow$   $792 \text{ kg/m}^3$

Boiling Point  $\rightarrow$   $64.7^\circ \text{C}$

Solubility in water  $\rightarrow$  Miscible

## USES

- \* It is used in polymers after converting it into formaldehyde.
- \* It is used to produce hydrocarbons.
- \* It is an excellent energy carrier. [DEPTH OF BIOLOGY]
- \* It is used as a fuel for internal combustion engines.
- \* It is used as an antifreeze.
- \* It is used in synthesis of chemicals.
- \* Pure methanol is used ~~as~~ in manufacture of
- \* perfumes, resins & pharmaceuticals.
- \* It is used as a fuel in boiling stoves & camping.
- \* consumption of methanol is toxic & can cause blindness.



# ~~CHLORO~~ CHLOROBUTANOL

[DEPTH OF BIOLOGY]

- \* It is a preservative, sedative, hypnotic & weak local anaesthetic similar in nature to chloral hydrate.
- \* It is formed by reaction of chloroform & Acetone in presence of KOH or NaOH.

[DEPTH OF BIOLOGY]

IUPAC Name  $\rightarrow$  1,1,1-Trichloro-2-Methylpropan-2-ol

Chemical formula  $\rightarrow$   $C_4H_7Cl_3O$

Molar mass  $\rightarrow$   $177.45 \text{ g mol}^{-1}$

Appearance  $\rightarrow$  white solid.

Odour  $\rightarrow$  Menthol

Boiling point  $\rightarrow$   $167^\circ \text{C}$

Solubility in water  $\rightarrow$  slightly soluble

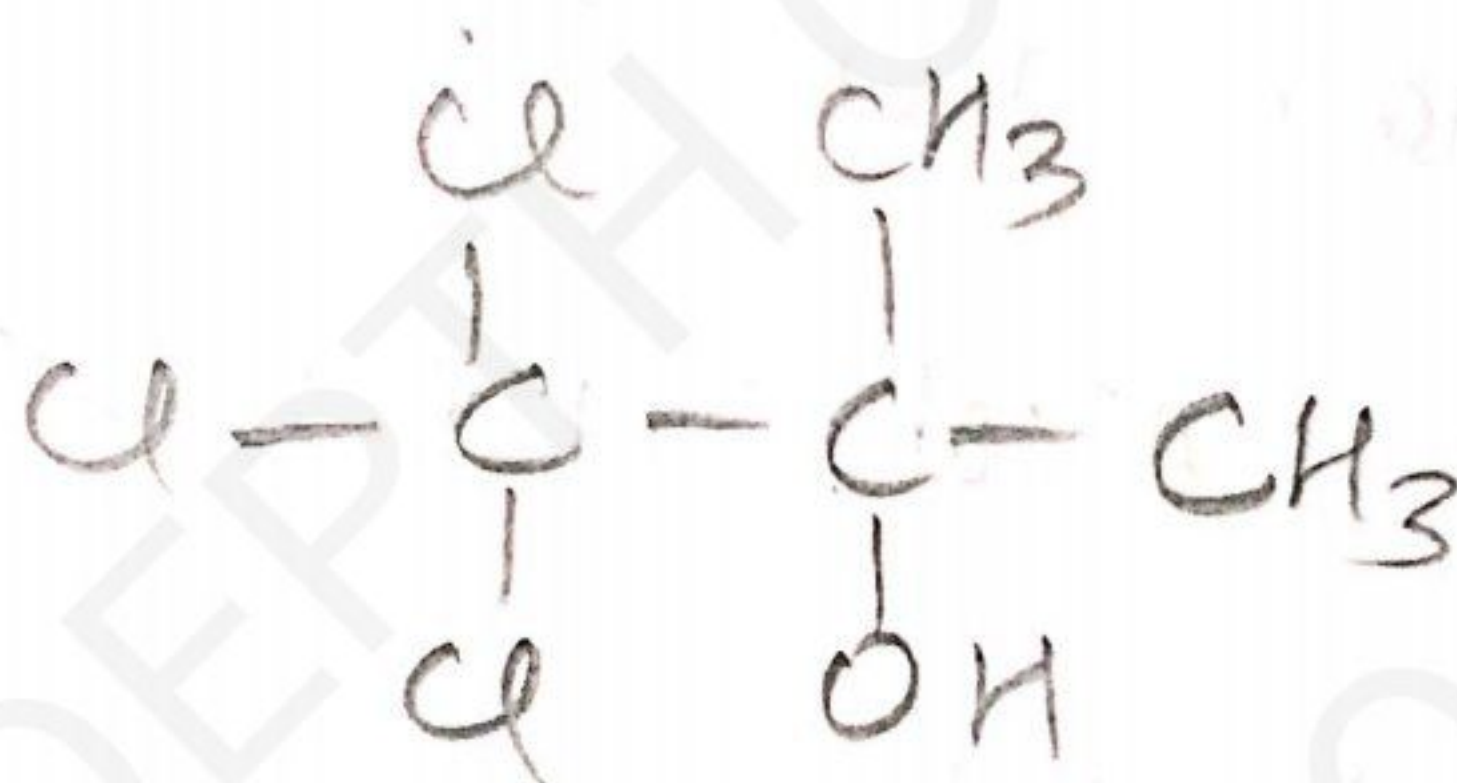
Solubility in Acetone  $\rightarrow$  Soluble

[DEPTH OF BIOLOGY]

## USES

- \* chlorobutanol has Antibacterial & fungicidal effects.
- \* It is used ~~as~~ at a conc. of 0.5% as a preservative in injections, eye drops & mouth washes, salves, creams, & ointments as well as cosmetics.
- \* It is manufactured as Hemihydrate & Anhydrous. The Anhydrous form is useful in formulations where the Absence of water is desired.





chlorobutanol



# CETOSTEARYL ALCOHOL

- \* It is a mixture of fatty alcohols consisting predominantly of cetyl & stearyl alcohols & is classified as a fatty alcohol.

[DEPTH OF BIOLOGY]

It imparts an emollient feel to the skin.

chemical formula  $\rightarrow \text{CH}_3(\text{CH}_2)_n\text{CH}_2\text{OH}$   
 $n = 14 - 16$

Other names  $\rightarrow$  cetyl stearyl alcohol  
cetyl/stearyl alcohol

Melting point  $\rightarrow 48^\circ\text{C}$  to  $56^\circ\text{C}$

[DEPTH OF BIOLOGY]

## USES

- \* It is used as an emulsion stabilizer, opacifying agent, & foam boosting surfactant, as well as an aqueous & Non-aqueous viscosity-increasing agent.
- \* It is used in making emulsions & Anhydrous formulations.
- \* It is commonly used in hair conditioners & other hair products.

[DEPTH OF BIOLOGY]



Cerosteryl Alcohol



$n \sim 14-16$



# BENZYL ALCOHOL

- \* It consists of a hydroxyl group attached to methyl group, which in turn is attached to an aromatic ring.
- \* The  $\pi$ -electrons in benzene are delocalized due to Resonance. [DEPTH OF BIOLOGY]

IUPAC Name  $\rightarrow$  Phenylmethanol

Chemical formula  $\rightarrow$   $C_7H_8O$

Molar Mass  $\rightarrow$   $108.140 \text{ g mol}^{-1}$

Appearance  $\rightarrow$  colourless liquid.

Odour  $\rightarrow$  slightly aromatic

Density  $\rightarrow$   $1.044 \text{ g cm}^{-3}$

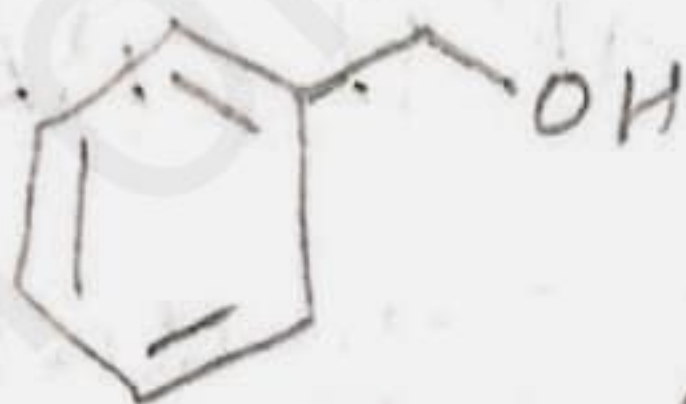
Boiling point  $\rightarrow$   $205.3^\circ\text{C}$  [DEPTH OF BIOLOGY]

Solubility in water  $\rightarrow$   $3.50 \text{ g/100 ml}$ .

## USE S

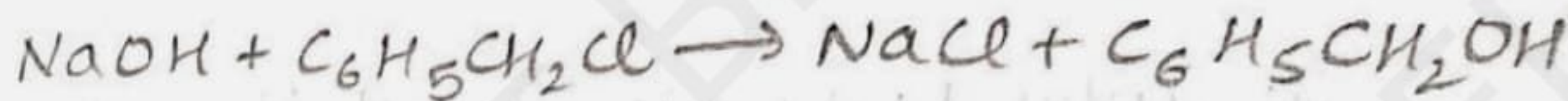
- \* It is a precursor to several esters.
- \* 5% solutions of this compound can be used to treat head lice.
- \* It is used in manufacture of soaps, shampoos, & skin lotions because of its antifungal & antibacterial properties. [DEPTH OF BIOLOGY]
- \* It serve as a dielectric solvent for the reconfiguration of some nanowires via dielectrophoresis.
- \* It is a component of the fluid mixtures used in electronic cigarettes (it enhances the flavour).





Benzyl Alcohol

Preparation  $\rightarrow$





# GLYCEROL

- \* Also known as Glycerin is a simple poly compound
- \* It is hygroscopic in nature & found in lipids like triglycerides & is obtained from animal & plant sources.
- \* It is non toxic, viscous & sweet taste.

[DEPTH OF BIOLOGY]

IUPAC Name  $\rightarrow$  Propane-1,2,3-triol

Chemical formula  $\rightarrow$   $C_3H_8O_3$

Molar Mass  $\rightarrow$   $92.094 \text{ g mol}^{-1}$

Appearance  $\rightarrow$  Colourless hygroscopic liquid

Odour  $\rightarrow$  Odorless

Density  $\rightarrow$   $1.261 \text{ g/cm}^3$

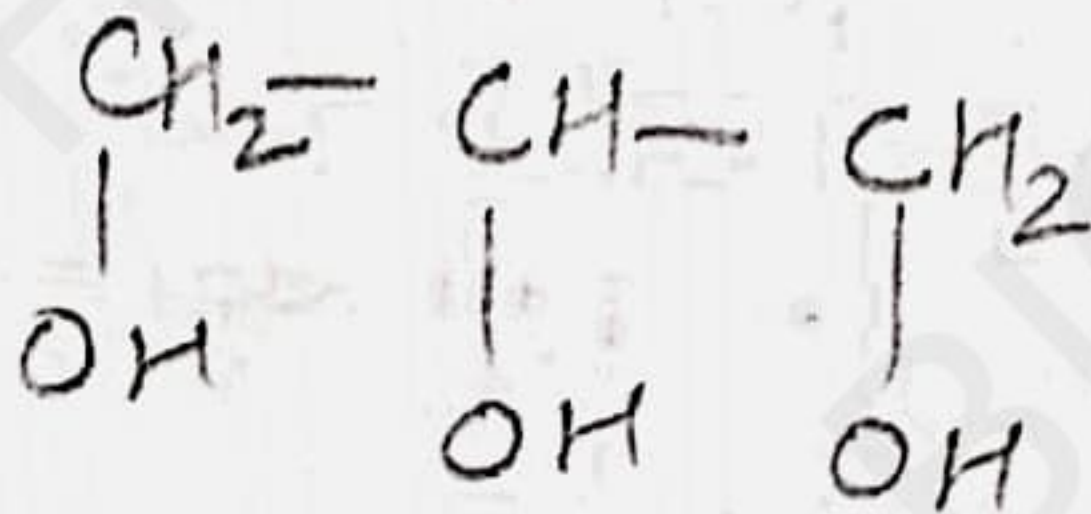
Boiling Point  $\rightarrow$   $177.8^\circ \text{C}$

## USES

- \* It is used in liquors as a thickening agent.
- \* It is used in food industry as a sweetener & preservative.
- \* It is used as a lubricant.
- \* It is used in making cough syrups.
- \* It is used in skincare products & toothpaste.
- \* It is used in electronic cigarette liquid.
- \* It is used to fill damp vibrations in pressure gauge.
- \* It has a moisturizing property & hence used to prevent dry skin.
- \* It is used in treatment of severely increased eye pressure.

[DEPTH OF BIOLOGY]





Glycerol



# PROPYLENE GLYCOL

- \* It is a synthetic liquid substance that absorbs water.
- \* It consists of 2 alcohol groups & hence it is classified as a diol.
- \* In general, glycols are non-irritating, having low volatility & very low toxicity.

[DEPTH OF BIOLOGY]

IUPAC Name  $\rightarrow$  Propane-1,2-diol

Chemical formula  $\rightarrow$   $C_3H_8O_2$

Molar Mass  $\rightarrow$   $76.095 \text{ g mol}^{-1}$

Appearance  $\rightarrow$  Viscous colourless liquid

Odour  $\rightarrow$  Slightly sweet odour

Density  $\rightarrow$   $1.036 \text{ g/cm}^3$

Boiling Point  $\rightarrow$   $188.2^\circ\text{C}$

Solubility in water  $\rightarrow$  Miscible

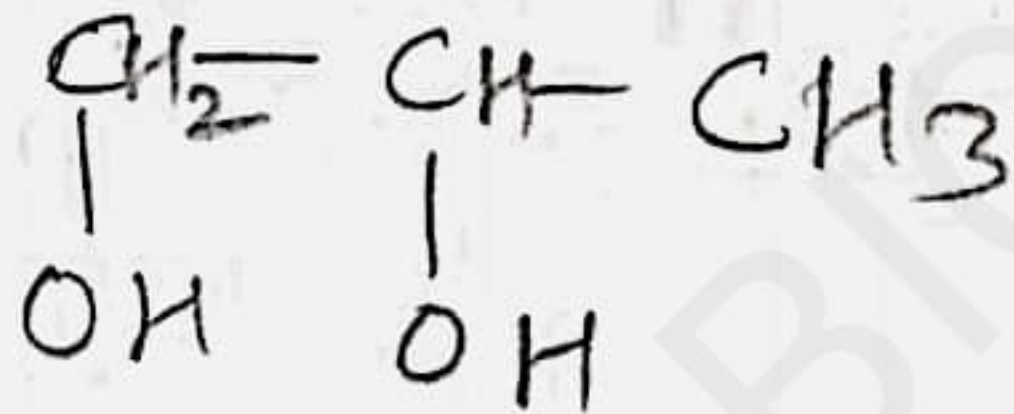
## USES

[DEPTH OF BIOLOGY]

- \* It is used in production of unsaturated polyester resin.
- \* It is also used in various edible items, such as coffee based-drinks, liquid sweeteners, ice-cream, whipped dairy products & Soda.
- \* It is used as air-craft de-icing liquid.
- \* It is used as a liquid in electronic cigarettes.
- \* It is used as a humectant.
- \* Used as an additive in PCR to Reduce the melting temperature of Nucleic Acids for targeting of GC rich sequences.

[DEPTH OF BIOLOGY]





Propylene glycol