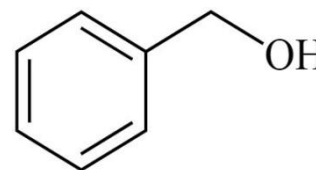


BENZYL ALCOHOL

Benzyl alcohol is an organic compound with the chemical formula $C_6H_5CH_2OH$. The IUPAC name of this compound is phenyl methanol. At room temperature, benzyl alcohol exists as a colourless liquid that has a mildly aromatic smell. When this aromatic alcohol is deprotonated, the resulting anion is called a benzylate.



This compound is not very soluble in water. However, it forms miscible mixtures with diethyl ether and other alcohols. Many plants are known to naturally produce $C_6H_5CH_2OH$. The essential oils extracted from jasmine, ylang-ylang, and hyacinth contain some amount of benzyl alcohol.

Uses:

This compound is widely used as a solvent for epoxy resin coatings, inks, and paints. Some other applications of benzyl alcohol are listed below.

- $C_6H_5CH_2OH$ is a precursor to several esters.
- A solution of benzyl alcohol with a concentration of 10% can be used as a local anaesthetic and also as an antimicrobial agent.
- This compound is a component of the fluid mixtures used in electronic cigarettes (it enhances the flavour).
- Benzyl alcohol can serve as a dielectric solvent for the reconfiguration of some nanowires via dielectrophoresis.
- 5% solutions of this compound can be used to treat head lice.
- It is used in the manufacture of soaps, shampoos, and skin lotions because of its antifungal and antibacterial properties.

Benzyl alcohol is used as both an excipient (preservative, solubilising agent) and as an active principal (antiseptic, local anaesthetic).

Benzyl alcohol is used for different purposes:

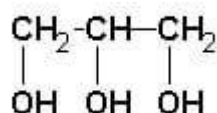
- preservative (2% in oral or parenteral pharmaceutical preparations, 3% in cosmetics)
- solubilising agent (concentration greater than or equal to 5%)
- disinfectant (10% solutions)
- local anaesthetic (in certain injections, cough remedies, ophthalmic solutions, ointments, dermatological aerosols)

GLYCEROL

Glycerol is a colorless, odorless liquid with a sweet taste. It is viscous at room temperature and non-toxic in low concentrations. Glycerol was discovered in 1779. It is also called glycyol alcohol, glycerin or glycerine in some literature.

Glycerol is seen in biological systems as an intermediate in carbohydrate and lipid metabolism because surplus carbohydrate can be converted into long chain fatty acids and esterified with the three hydroxyl groups. Glycerol can influence immune reactions in the body through histamines, increased antibody production and by enhancing immune cell activity and is therefore classified as an allergen. In the blood, glycerol can increase blood pressure by preferentially attracting the water from tissues into plasma and lymph. In nephrons, glycerol can increase urine volume by preventing water resorption.

The structural formula of Glycerol is $C_3H_5(OH)_3$



USES:

1. Glycerol is used in a number of industrial applications, in the pharmaceutical industry, in cosmetics and personal care products, in the production of resins, detergents, plastics and tobacco and as a humectant in food.
2. Glycerol is used in the cosmetics industry as a moisture-control reagent and to enhance the texture of lotions and creams.
3. Pure glycerol is a crucial part of the industrial production of antifreeze, textiles and waxes. It is used in large quantities to generate resins, paints and waxes, for creating cleaning and purifying agents for soldering, and in the manufacture of many textiles and cosmetics.
4. Glycerol usage in the pharmaceutical industry is to improve smoothness and taste. It is used in the creation of tablets so that they are easy to swallow. The coating can disintegrate within the body. Cough lozenges often use glycerol to give a sweet taste. Suppositories of glycerol can act as laxatives since they can irritate anal mucosa.
5. Its use as a commercially important chemical began with its application in the production of dynamite. Dynamite was necessary in the discovery and extraction of underground minerals, and in the construction of infrastructure. Therefore, it propelled industrial development.

PROPYLENE GLYCOL

Other names for propylene glycol are 1,2-dihydroxypropane, 1,2-propanediol, methyl glycol, and trimethyl glycol. Propylene glycol is clear, colorless, slightly syrupy liquid at room temperature. It may exist in air in the vapor form, although propylene glycol must be

heated or briskly shaken to produce a vapor. Propylene glycol is practically odorless and tasteless. Propylene glycol is a synthetic liquid substance that absorbs water.

Uses:

1. Propylene glycol is also used to make polyester compounds, and as a base for deicing solutions.
2. Propylene glycol is used by the chemical, food, and pharmaceutical industries as an anti-freeze when leakage might lead to contact with food.
3. The Food and Drug Administration (FDA) has classified propylene glycol as an additive that is “generally recognized as safe” for use in food.
4. It is used to absorb extra water and maintain moisture in certain medicines, cosmetics, or food products.
5. It is a solvent for food colors and flavors, and in the paint and plastics industries.
6. Propylene glycol is also used to create artificial smoke or fog used in fire-fighting training and in theatrical productions.

