

Glycerol $C_3H_8O_3$



Glycerin is widely used in cosmetics and skincare

products as humectant, meaning it helps retain moisture in the skin. It is also used as a solvent, emollient, and lubricant. Due to its non-toxic nature, it is also used in food and pharmaceuticals

CHEMICAL PROPERTIES

- **Hydroxyl Groups:** Glycerin has three hydroxyl ($-OH$) groups, which make it highly soluble in water and give it its hygroscopic nature (ability to absorb moisture from the air).
- **Alcoholic Nature:** Being a trihydroxy alcohol, glycerin is a type of alcohol with three alcohol functional groups, which influences its reactivity and solubility.
- **Reactivity with Acids:** Glycerin reacts with acids to form esters. For instance, it reacts with fatty acids to form glycerides (fats and oils). This reaction is commonly used in the production of biodiesel.

- **Dehydration:** When heated with concentrated sulfuric acid, glycerin undergoes dehydration to form acrolein, a compound used in the manufacture of plastics and other chemicals.
- **Oxidation:** Glycerin can be oxidized to form glyceric acid or other higher oxidation states depending on the conditions. This oxidation is often catalyzed by specific reagents or enzymes.
- **Reduction:** Glycerin can be reduced to produce propane-1,2-diol (propylene glycol) under certain conditions.
- **Complexation:** Glycerin can form complexes with various metals and organic compounds due to its ability to donate hydrogen bonds through its hydroxyl groups.

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