Applications, Characteristics and Information of Glycerin

Glycerin is, in simple terms, an organic alcohol mixture of sugar and alcohol and is fully miscible in water. Due to its properties, glycerin has many uses in nearly every industry.

**It’s most common uses are:**

- Thickening agent in Cosmetics and Foods
- Emulsifier and humectant in Cosmetics
- Sweetening agent
- Plasticizer in Packaging, Paints and Paper industry
- Preservative in many industries, such as foods and beverages, etc.

**Glycerin is widely used across many industries, such as:**

- Food/beverage applications
- De-icing/anti-freeze applications
- Pharmaceutical applications
- Cosmetic/personal care applications
- Industrial applications

Glycerin is a clear, syrupy liquid with a sweet taste and is extremely hygroscopic (water-attracting) in pure form. It is produced by the reaction of oils and fats with water, and is separated and purified to make a high quality product suitable for a wide range of end uses.

**Industrial Applications :**

Glycerin has important industrial applications, for example as a polymer building block in the production of alkyd resins and polyurethanes for use in paints, inks and coatings. Glycerine is also a raw material for the manufacture of many different types of chemical intermediate, including solvents, plasticizers and surfactants. The water-binding tendency of glycerin is exploited in the preparation of anti-static and anti-fogging additives.
Foods and Beverages:

In foods and beverages, glycerin functions variously as a humectant, solvent, preservative and sweetener. It is also used in skin creams, body washes, shampoos and soaps for its lubricating, moisturizing and clarifying properties. Due to its benign nature it can be safely ingested, and is used to sweeten and thicken cough syrups, elixirs and expectorants, toothpastes and mouthwashes. In liquid detergents, glycerin has an important role as viscosity regulator, solvent and clarifying agent.

Potential Applications:

<table>
<thead>
<tr>
<th>Applications</th>
<th>Glycerin</th>
</tr>
</thead>
</table>
| **Health Care**       | • Excipient use only  
• Used medical and pharmaceutical preparations, mainly as a means of improving smoothness, providing lubrication and humectants  
• Suppositories, cough syrups, elixirs and expectorants |
| **Personal Care**     | • Excipient use only  
• Serves as humectants, solvent and lubricant in personal care products  
• Competes with sorbitol, although glycerin has better taste and higher solubility  
• Toothpaste, mouthwashes, skin care products |
| **Foods and Beverages** | • Serves as humectants, solvent, and sweetener. May help to preserve foods.  
• Solvent for flavors and food coloring  
• Humectant and softening agent in candy, cakes and casings for meats and cheeses  
• Manufacture of mono- and di-glycerides for use as emulsifiers  
• Used in manufacture of polyglycerol esters going into shortenings and margarine  
• Used as filler in low-fat food products (e.g., cookies) |
| **Polyether Polyols** | • One of the major raw materials for the manufacture of polyols for flexible foams, and to a lesser extent, rigid polyurethane foams  
• Glycerin is the initiator to which propylene oxide/ethylene oxide is added |
| **Alkyd Resins Cellophane** | • Used in surface coatings and paints  
• Used as softener and plasticizer to impart flexibility, pliability and toughness  
• Uses include meat casings, collagen casings, (medical applications) and non-meat packaging |
<table>
<thead>
<tr>
<th>Applications</th>
<th>Glycerin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosives</td>
<td>• Used in the production of nitro glycerin</td>
</tr>
<tr>
<td></td>
<td>• Glycerol triacetate is a component in binders for the production of solid rocket fuels</td>
</tr>
<tr>
<td>Other</td>
<td>• Epichlorohydrin Production</td>
</tr>
<tr>
<td></td>
<td>• Mono Propylene Glycol Production</td>
</tr>
<tr>
<td></td>
<td>• Manufacturing of paper as a plasticizer, humectant and lubricant</td>
</tr>
<tr>
<td></td>
<td>• Humectant for pet foods to retain moisture and enhance palatability</td>
</tr>
<tr>
<td></td>
<td>• Used in lubricating, sizing, and softening of yarn and fabric</td>
</tr>
<tr>
<td></td>
<td>• Used in de-/anti-icing fluids</td>
</tr>
</tbody>
</table>

**Typical specification Glycerin**

![Glycerin Specification](image-url)