

# Phenol

## (Carbolic Acid)

### C<sub>6</sub>H<sub>5</sub>OH

Phenol is a colorless solid or a clear, thick liquid. It has a characteristically sweet odor and absorbs water from the air. It is also soluble in alcohol and other organic solvents. The principal use for phenol is for the manufacture of resins, especially phenol-formaldehyde thermosetting resins. Georgia Gulf phenol is produced by the oxidation of cumene at our chemical complexes located in Plaquemine, Louisiana and Pasadena, Texas.

#### Properties

Molecular weight	94.12
Melting point, °C	40
	105
Specific gravity @ 25 °/4 °C	1.071
Boiling point, °C	182
	359.6
Flash point (closed cup), °F	174

#### Typical Analysis

Non-volatile matter, g/100ml	0.02
	ASTM D-1353
Water, wt. %	0.03 maximum
	ASTM D-1631
Freezing point, °C	40.6 minimum
	ASTM D-1493
Color (APHA)	25 maximum
	ASTM D-1 686

#### Uses

The largest use of phenol is for phenolic resins which are any of several types of synthetic thermosetting resins. These resins are obtained from the reaction of phenol or substituted phenols with aldehydes such as formaldehyde, acetaldehyde furfural. Phenol-formaldehyde resins are the major resins in this class.

Phenol is also used to produce bisphenol A, a chemical intermediate in the manufacture of epoxy resin and polycarbonate engineering plastics. Phenol is also used to produce caprolactam, aniline and 2, 6 xlenols.

There are many other uses for phenol, and they are quite diversified, including chemical intermediates for alkylated phenols, lube oil additives, plasticizers, pharmaceuticals, herbicides, preservatives and dyes.

#### Handling and Storage

Phenol is a solid below 40EC (104EF), and steam is applied to heater coils in tank cars and tank trucks for unloading. The recommended maximum unloading temperature should not exceed 60 EC (140 EF). Overheating or frequent reheating of phenol should be avoided to prevent darkening of the material due to degradation. Phenol expands at elevated temperatures and occupies a slightly larger volume.

The preferred method of unloading tank trucks is by pump; tank cars may be unloaded by pump or air pressure. Unloading equipment should be electrically grounded and bonded to prevent possible ignition from static sparks. No open flames or sparks, as from smoking, etc. are allowed during the unloading process.

Care should be taken when melting phenol in drums and isocontainers. Dry heat is preferred, but a steam room or steam bath may be used.

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**IMPORTANT:** The technical data herein is believed to be accurate. It is offered for your consideration investigation and verification. Buyer assumes all risk of use, storage and handling of the product.

**No warranty, expressed or implied, is made including, but not limited to, implied warranties of merchantability and fitness for a particular purpose.**

Nothing contained herein shall be construed as a license to operate under, or recommendation to infringe, any patents.

Phenol storage should be in a cool, dry, well-ventilated location. For storage tanks, lines and fittings, iron and steel can be used with only a slight degradation effect from dry or nearly dry phenol. Hot phenol attacks materials containing iron and copper. Local and federal regulations as well as insurance codes should be considered whenever phenol is stored, used or handled.

Where color is important, storage tanks should be of stainless steel, or glass- or nickel-lined steel. Monel may also be used. Steam or electrically traced lines are used to keep phenol molten for transfer.

In case of fire, use water, carbon dioxide or dry chemical extinguishers. When exposed to the heat of a fire, phenol may emit flammable, toxic fumes.

Phenol spills may need to be reported to the National Response Center (800-424-8802). Disposal of spill material should be in compliance with local, state and federal regulations.

**More information on the safe handling of phenol is in the Material Safety Data Sheet available from Georgia Gulf.**

## Shipping

Georgia Gulf ships phenol in ocean going vessels, tank cars and tank trucks from our plants at Plaquemine, Louisiana and Pasadena, Texas. Any signs of leaking product during shipping or unloading must be given prompt attention.

The Department of Transportation (DOT) regulates the shipment of phenol, and information concerning placarding and reportable quantity requirements for any quantity of shipment is available from the DOT Materials Transportation Bureau or from Georgia Gulf.

Phenol is classified by the DOT as a poison; its Hazardous Material Identification number is UN 1671. Leaking tank cars must be given prompt attention. In case of emergency, contact CHEMTREC at 800-424-9300.

## Sales and Service

Competent sales personnel are available to help meet your needs with Georgia Gulf chemicals.