

## Material Safety Data Sheet

Version 5.0  
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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Phenol

Product Number : P1037

Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

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Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Corrosive, Mutagen

##### Target Organs

Central nervous system, Kidney, Liver, Pancreas, Spleen.

##### Other hazards which do not result in classification

Vesicant., Rapidly absorbed through skin.

##### GHS Classification

Acute toxicity, Oral (Category 4)  
Acute toxicity, Inhalation (Category 3)  
Acute toxicity, Dermal (Category 3)  
Skin corrosion (Category 1B)  
Serious eye damage (Category 1)  
Germ cell mutagenicity (Category 2)  
Specific target organ toxicity - single exposure (Category 2)  
Specific target organ toxicity - repeated exposure (Category 2)  
Acute aquatic toxicity (Category 3)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H302	Harmful if swallowed.
H311 + H331	Toxic in contact with skin or if inhaled
H314	Causes severe skin burns and eye damage.
H341	Suspected of causing genetic defects.
H371	May cause damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.

H402 Harmful to aquatic life.

Precautionary statement(s)

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/ physician.

**HMIS Classification**

**Health hazard:** 3

**Chronic Health Hazard:** \*

**Flammability:** 0

**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 3

**Fire:** 2

**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

**Skin** Toxic if absorbed through skin. Causes skin burns.

**Eyes** Causes eye burns.

**Ingestion** Toxic if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Hydroxybenzene

Formula : C<sub>6</sub>H<sub>6</sub>O

Molecular Weight : 94.11 g/mol

Component		Concentration
<b>Phenol</b>		
CAS-No.	108-95-2	-
EC-No.	203-632-7	
Index-No.	604-001-00-2	

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**4. FIRST AID MEASURES**

**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

**If swallowed**

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES**

**Conditions of flammability**

Not flammable or combustible.

**Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

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**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature: 2 - 8 °C

Light sensitive. Handle and store under inert gas.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Phenol	108-95-2	TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Lung damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption			
		TWA	5 ppm 19 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin notation			
		TWA	5 ppm 19 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Skin designation The value in mg/m3 is approximate.			
		TWA	5 ppm 19 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption 15 minute ceiling value			
		C	15.6 ppm 60 mg/m3	USA. NIOSH Recommended Exposure Limits
	Potential for dermal absorption 15 minute ceiling value			

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form	solid
Colour	no data available

### Safety data

pH	6.0
Melting point/freezing point	40.0 - 42.0 °C (104.0 - 107.6 °F)
Boiling point	182.0 °C (359.6 °F)
Flash point	79.0 °C (174.2 °F) - closed cup
Ignition temperature	715 °C (1,319 °F)
Autoignition temperature	715.0 °C (1,319.0 °F)
Lower explosion limit	1.7 %(V)
Upper explosion limit	8.6 %(V)
Vapour pressure	6.3 hPa (4.7 mmHg) at 55.0 °C (131.0 °F) 0.5 hPa (0.4 mmHg) at 20.0 °C (68.0 °F)
Density	1.07 g/cm <sup>3</sup>
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 1.46
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

**Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Strong oxidizing agents, Strong bases, Strong acids

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 317.0 mg/kg

Remarks: Behavioral:Convulsions or effect on seizure threshold.

LD50 Oral - rat - 410.0 - 650.0 mg/kg

**Inhalation LC50**

LC50 Inhalation - rat - 8 h - 900 mg/m3

**Dermal LD50**

LD50 Dermal - rabbit - 630.0 mg/kg

**Other information on acute toxicity**

no data available

**Skin corrosion/irritation**

Skin - rabbit - Severe skin irritation - 24 h

**Serious eye damage/eye irritation**

Eyes - rabbit - Severe eye irritation

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

In vitro tests showed mutagenic effects

**Carcinogenicity**

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Phenol)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**Reproductive toxicity**

no data available

#### **Teratogenicity**

no data available

#### **Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

#### **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

May cause damage to organs through prolonged or repeated exposure.

#### **Aspiration hazard**

no data available

#### **Potential health effects**

<b>Inhalation</b>	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	Toxic if absorbed through skin. Causes skin burns.
<b>Eyes</b>	Causes eye burns.

#### **Signs and Symptoms of Exposure**

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Circulatory collapse, tachypnea, paralysis, Convulsions, Coma., necrosis of mouth and G.I. Tract, Jaundice, respiratory failure, cardiac arrest

#### **Synergistic effects**

no data available

#### **Additional Information**

RTECS: SJ3325000

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## **12. ECOLOGICAL INFORMATION**

#### **Toxicity**

Toxicity to fish	LC50 - <i>Leuciscus idus</i> (Golden orfe) - 14.00 - 25.00 mg/l - 48 h
	LC50 - <i>Carassius auratus</i> (goldfish) - 36.10 - 68.80 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - <i>Daphnia magna</i> (Water flea) - 12.00 mg/l - 24 h
	EC100 - <i>Daphnia magna</i> (Water flea) - 100.00 mg/l - 24 h
Toxicity to algae	EC50 - <i>Chlorella vulgaris</i> (Fresh water algae) - 370.00 mg/l - 96 h

#### **Persistence and degradability**

no data available

#### **Bioaccumulative potential**

no data available

#### **Mobility in soil**

no data available

#### **PBT and vPvB assessment**

no data available

#### **Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Harmful to aquatic life.

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### 13. DISPOSAL CONSIDERATIONS

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

#### Contaminated packaging

Dispose of as unused product.

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### 14. TRANSPORT INFORMATION

#### DOT (US)

UN number: 1671    Class: 6.1    Packing group: II  
Proper shipping name: Phenol, solid  
Reportable Quantity (RQ): 1000 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

#### IMDG

UN number: 1671    Class: 6.1    Packing group: II    EMS-No: F-A, S-A  
Proper shipping name: PHENOL, SOLID  
Marine pollutant: No

#### IATA

UN number: 1671    Class: 6.1    Packing group: II  
Proper shipping name: Phenol, solid

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### 15. REGULATORY INFORMATION

#### OSHA Hazards

Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Corrosive, Mutagen

#### SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Phenol	108-95-2	2007-07-01

#### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Phenol	108-95-2	2007-07-01

#### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Phenol	108-95-2	2007-07-01

#### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Phenol	108-95-2	2007-07-01

#### New Jersey Right To Know Components

	CAS-No.	Revision Date
Phenol	108-95-2	2007-07-01

#### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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## 16. OTHER INFORMATION

### **Further information**

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