

SAFETY DATA SHEET

Creation Date 21-Dec-2010

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Revision Number 3

1. Identification

Product Name Phenol Liquid

Cat No. : A931I-1, A931I-4, A931I-200, A931I-500

Synonyms Carboic acid; Hydroxybenzene; Phenylic acid

Recommended Use Laboratory chemicals.

Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

| | |
|---|--------------|
| Flammable liquids | Category 4 |
| Corrosive to metals | Category 1 |
| Acute oral toxicity | Category 3 |
| Acute dermal toxicity | Category 3 |
| Acute Inhalation Toxicity - Vapors | Category 3 |
| Skin Corrosion/Irritation | Category 1 B |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Germ Cell Mutagenicity | Category 2 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system, Central nervous system (CNS). | |
| Specific target organ toxicity - (repeated exposure) | Category 2 |
| Target Organs - Liver, Kidney, Blood. | |

Label Elements

Signal Word

Danger

Hazard Statements

Combustible liquid
May be corrosive to metals
Toxic if swallowed
Toxic in contact with skin
Toxic if inhaled

Causes severe skin burns and eye damage
 Suspected of causing genetic defects
 May cause respiratory irritation
 May cause drowsiness or dizziness
 May cause damage to organs through prolonged or repeated exposure



Precautionary Statements

Prevention

Obtain special instructions before use
 Do not handle until all safety precautions have been read and understood
 Use personal protective equipment as required
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Use only outdoors or in a well-ventilated area
 Do not breathe dust/fume/gas/mist/vapors/spray
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking
 Keep cool

Response

Immediately call a POISON CENTER or doctor/physician

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin

Wash contaminated clothing before reuse
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Eyes

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

Ingestion

Rinse mouth
 Do NOT induce vomiting

Fire

In case of fire: Use CO₂, dry chemical, or foam for extinction

Storage

Store locked up
 Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

3. Composition / information on ingredients

| Component | CAS-No | Weight % |
|-----------------------|-----------|----------|
| Phenol | 108-95-2 | 89 |
| Water | 7732-18-5 | 11 |
| Oxalic acid dihydrate | 6153-56-6 | 0.01 |

4. First-aid measures

| | |
|--|--|
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required. |
| Inhalation | Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. |
| Ingestion | Do not induce vomiting. Call a physician or Poison Control Center immediately. |
| Most important symptoms/effects | Breathing difficulties. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting; Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|---|
| Suitable Extinguishing Media | Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | 79.4 °C / 174.9 °F |
| Method - | No information available |
| Autoignition Temperature | 715 °C / 1319 °F |
| Explosion Limits | |
| Upper | 8.6 vol % |
| Lower | 1.8 vol % |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Combustible material. Risk of ignition. Containers may explode when heated.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

| | | | |
|--------------------|--------------------------|-------------------------|--------------------------------|
| Health 4 | Flammability 2 | Instability 0 | Physical hazards N/A |
|--------------------|--------------------------|-------------------------|--------------------------------|

6. Accidental release measures

| | |
|---|--|
| Personal Precautions | Use personal protective equipment. Remove all sources of ignition. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Take precautionary measures against static discharges. |
| Environmental Precautions | Avoid release to the environment. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system. |
| Methods for Containment and Clean Up | Remove all sources of ignition. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. Use spark-proof tools and explosion-proof equipment. |

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest. Keep away from open flames, hot surfaces and sources of ignition.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Protect from moisture. Protect from light. Corrosives area.

8. Exposure controls / personal protection

Exposure Guidelines

| Component | ACGIH TLV | OSHA PEL | NIOSH IDLH | Mexico OEL (TWA) |
|-----------------------|---|--|--|---|
| Phenol | TWA: 5 ppm Skin | (Vacated) TWA: 5 ppm (Vacated) TWA: 19 mg/m ³ Skin TWA: 5 ppm TWA: 19 mg/m ³ | IDLH: 250 ppm TWA: 5 ppm TWA: 19 mg/m ³ Ceiling: 15.6 ppm Ceiling: 60 mg/m ³ | TWA: 5 ppm TWA: 19 mg/m ³ STEL: 10 ppm STEL: 38 mg/m ³ |
| Oxalic acid dihydrate | TWA: 1 mg/m ³ STEL: 2 mg/m ³ | | | |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

| | |
|----------------------------------|------------------------------|
| Physical State | Liquid |
| Appearance | Colorless |
| Odor | sweet |
| Odor Threshold | No information available |
| pH | 6 |
| Melting Point/Range | 42.8 °C / 109 °F |
| Boiling Point/Range | 182 °C / 359.6 °F |
| Flash Point | 79.4 °C / 174.9 °F |
| Evaporation Rate | < 0.01 (Butyl Acetate = 1.0) |
| Flammability (solid,gas) | Not applicable |
| Flammability or explosive limits | |
| Upper | 8.6 vol % |

| | |
|---|----------------------------------|
| Lower | 1.8 vol % |
| Vapor Pressure | .35 mmHg @ 25 °C |
| Vapor Density | 3.2 |
| Specific Gravity | 1.0576 |
| Solubility | Slightly soluble in water |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temperature | 715 °C / 1319 °F |
| Decomposition Temperature | No information available |
| Viscosity | No information available |
| Molecular Formula | C ₆ H ₅ OH |
| Molecular Weight | 94.1 |

10. Stability and reactivity

| | |
|---|--|
| Reactive Hazard | None known, based on information available |
| Stability | Hygroscopic. Light sensitive. |
| Conditions to Avoid | Incompatible products. Heat, flames and sparks. Exposure to moisture. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition. |
| Incompatible Materials | Acids, Bases, Strong oxidizing agents, Halogens, lead, Metals |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO ₂) |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

11. Toxicological information

Acute Toxicity

Product Information

Oral LD50

Category 3. ATE = 50 - 300 mg/kg.

Dermal LD50

Category 3. ATE = 200 - 1000 mg/kg.

Vapor LC50

Based on ATE data, the classification criteria are not met. ATE > 20 mg/l.

Component Information

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-----------------------|--|-----------------------------|--|
| Phenol | LD50 = 317 mg/kg (Rat) LD50 = 340 mg/kg (Rat) | LD50 = 630 mg/kg (Rabbit) | LC50 = 316 mg/m ³ (Rat) 4 h |
| Water | - | Not listed | Not listed |
| Oxalic acid dihydrate | LD50 = 375 mg/kg (Rat) | Not listed | Not listed |

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Causes burns by all exposure routes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component | CAS-No | IARC | NTP | ACGIH | OSHA | Mexico |
|-----------------------|-----------|------------|------------|------------|------------|------------|
| Phenol | 108-95-2 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Water | 7732-18-5 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Oxalic acid dihydrate | 6153-56-6 | Not listed | Not listed | Not listed | Not listed | Not listed |

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

| | |
|---|---|
| Mutagenic Effects | Possible risk of irreversible effects |
| Reproductive Effects | Experiments have shown reproductive toxicity effects on laboratory animals. |
| Developmental Effects | No information available. |
| Teratogenicity | No information available. |
| STOT - single exposure | Respiratory system Central nervous system (CNS) |
| STOT - repeated exposure | Liver Kidney Blood |
| Aspiration hazard | No information available |
| Symptoms / effects, both acute and delayed | Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation |
| Endocrine Disruptor Information | No information available |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |

12. Ecological information

Ecotoxicity

Do not empty into drains.

| Component | Freshwater Algae | Freshwater Fish | Microtox | Water Flea |
|-----------|---|---|--|---|
| Phenol | EC50: 187 - 279 mg/L, 72h static (Desmodesmus subspicatus) EC50: 0.0188 - 0.1044 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: = 46.42 mg/L, 96h (Pseudokirchneriella subcapitata) | 4-7 mg/L LC50 96 h 32 mg/L LC50 96 h | EC50 21 - 36 mg/L 30 min EC50 = 23.28 mg/L 5 min EC50 = 25.61 mg/L 15 min EC50 = 28.8 mg/L 5 min EC50 = 31.6 mg/L 15 min | EC50: 10.2 - 15.5 mg/L, 48h (Daphnia magna) EC50: 4.24 - 10.7 mg/L, 48h Static (Daphnia magna) |

Persistence and Degradability May persist based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

| Component | log Pow |
|-----------|---------|
| Phenol | 1.5 |

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

| Component | RCRA - U Series Wastes | RCRA - P Series Wastes |
|-------------------|------------------------|------------------------|
| Phenol - 108-95-2 | U188 | - |

14. Transport information

DOT

UN-No

UN2821

| | |
|----------------------|------------------|
| Proper Shipping Name | PHENOL SOLUTIONS |
| Hazard Class | 6.1 |
| Packing Group | II |
| TDG | |
| UN-No | UN2821 |
| Proper Shipping Name | PHENOL SOLUTIONS |
| Hazard Class | 6.1 |
| Packing Group | II |
| IATA | |
| UN-No | UN2821 |
| Proper Shipping Name | PHENOL SOLUTION |
| Hazard Class | 6.1 |
| Packing Group | II |
| IMDG/IMO | |
| UN-No | UN2821 |
| Proper Shipping Name | PHENOL SOLUTION |
| Hazard Class | 6.1 |
| Packing Group | II |

15. Regulatory information

International Inventories

| Component | TSCA | DSL | NDSL | EINECS | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|-----------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Phenol | X | X | - | 203-632-7 | - | | X | X | X | X | X |
| Water | X | X | - | 231-791-2 | - | | X | - | X | X | X |
| Oxalic acid dihydrate | - | - | - | - | - | | X | X | X | X | - |

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

| Component | CAS-No | Weight % | SARA 313 - Threshold Values % |
|-----------|----------|----------|-------------------------------|
| Phenol | 108-95-2 | 89 | 1.0 |

SARA 311/312 Hazard Categories

| | |
|-----------------------------------|-----|
| Acute Health Hazard | Yes |
| Chronic Health Hazard | Yes |
| Fire Hazard | Yes |
| Sudden Release of Pressure Hazard | No |
| Reactive Hazard | No |

CWA (Clean Water Act)

| Component | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-----------|----------------------------|-----------------------------|------------------------|---------------------------|
| | | | | |

| | | | | |
|--------|---|---------|---|---|
| Phenol | X | 1000 lb | X | X |
|--------|---|---------|---|---|

Clean Air Act

| Component | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|-----------|-----------|-------------------------|-------------------------|
| Phenol | X | | - |

OSHA Occupational Safety and Health Administration

Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component | Hazardous Substances RQs | CERCLA EHS RQs |
|-----------|--------------------------|----------------|
| Phenol | 1000 lb | 1000 lb |

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-----------------------|---------------|------------|--------------|----------|--------------|
| Phenol | X | X | X | X | X |
| Water | - | - | X | - | - |
| Oxalic acid dihydrate | - | - | X | - | X |

U.S. Department of Transportation

Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Moderate risk, Grade 2

16. Other information

Prepared By Regulatory Affairs
 Thermo Fisher Scientific
 Email: EMSDS.RA@thermofisher.com

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Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS