

9/10/07



SIGMA-ALDRICH

### Material Safety Data Sheet

Date Printed: 08/23/2007  
Date Updated: 02/03/2006  
Version 2.80

#### Section 1 - Product and Company Information

<b>Product Name</b>	TRI <sup>®</sup> Reagent	
<b>Product Number</b>	T9424	
<b>Brand</b>	Sigma Chemical	
<b>Company</b>	Sigma-Aldrich	
<b>Street Address</b>	3050 Spruce Street	
<b>City, State, Zip, Country</b>	SAINT LOUIS, MO 63103 US	
<b>Technical Phone:</b>	800-325-5832	<b>Emergency Phone:</b> 314-776-6555
<b>Fax:</b>	800-325-5052	

#### Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>SARA 313</u>	<u>EC no</u>	<u>Annex I Index Number</u>
TRI REAGENT	None	Yes		

**Formula**  
**Synonyms**

#### Section 3 - Hazards Identification

##### Emergency Overview

Toxic.  
Causes burns. Contact with acids liberates toxic gas.  
Vesicant. Readily absorbed through skin. Combustible. Target organ(s): Central nervous system. Kidneys.

##### HMIS Rating

Health: 3\*      Flammability: 2      Reactivity: 1

##### NFPA Rating

Health: 3      Flammability: 2      Reactivity: 1

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

#### Section 4 - First Aid Measures

##### Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

##### Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

##### Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

##### Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

#### Section 5 - Fire Fighting Measures

**Flash Point:** 174 °F 79 °C

**Autoignition Temp:** 715 °C

##### Extinguishing Media

**Suitable**  
Carbon dioxide, dry chemical powder, or appropriate foam.

##### Firefighting

###### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

###### Specific Hazard(s)

Emits toxic fumes under fire conditions.

#### Section 6 - Accidental Release Measures

##### Procedure to be Followed in Case of Leak or Spill

Evacuate area.

##### Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

##### Methods for Cleaning Up

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

#### Section 7 - Handling and Storage

##### Handling

###### User Exposure

Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

##### Storage

###### Suitable

Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Store at 2-8°C

#### Section 8 - Exposure Controls / PPE

##### Engineering Controls

Safety shower and eye bath. Use only in a chemical fume hood.

##### Personal Protective Equipment

###### Respiratory

Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

###### Hand

Compatible chemical-resistant gloves.

###### Eye

Chemical safety goggles.

###### Other

Faceshield (8-inch minimum).

#### General Hygiene Measures

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

### Section 9 - Physical/Chemical Properties

#### Appearance

##### Physical State

Liquid

Molecular Weight: N/A

pH N/A  
BP/BP Range N/A  
MP/MP Range N/A  
Freezing Point N/A  
Vapor Pressure 0.35 mmHg  
Vapor Density N/A  
Saturated Vapor Conc. N/A  
SG/Density N/A  
Bulk Density N/A  
Odor Threshold N/A  
Volatile% N/A  
VOC Content N/A  
Water Content N/A  
Solvent Content N/A  
Evaporation Rate N/A  
Viscosity N/A  
Partition Coefficient N/A  
Decomposition Temp. N/A  
Flash Point °F 174 °F  
Flash Point °C 79 °C

Method: closed cup  
Method: closed cup

Explosion Limits N/A

Flammability N/A  
Autoignition Temp 715 °C

#### Solubility

Solubility in Water: Soluble.

Other Solvents: GLYCERIN, DIMETHYL SULFOXIDE.

N/A = not available

### Section 10 - Stability and Reactivity

#### Stability

##### Stable

Stable.

##### Conditions of Instability

May discolor on exposure to light.

##### Conditions to Avoid

Light.

##### Materials to Avoid

Strong oxidizing agents, Strong bases, Strong acids.

#### Hazardous Decomposition Products

##### Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide, Hydrogen cyanide, Sulfur oxides.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

### Section 11 - Toxicological Information

#### Route of Exposure

##### Skin Contact

Causes burns.

##### Skin Absorption

Readily absorbed through skin.

##### Eye Contact

Causes burns.

##### Inhalation

Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.

##### Ingestion

Toxic if swallowed.

#### Target Organ(s) or System(s)

Central nervous system. Kidneys. Liver. Pancreas. Spleen.

#### Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause: Dermatitis. Ingestion can cause circulatory collapse, tachypnea, paralysis, convulsions, coma, necrosis of mouth and G.I. tract, jaundice, death from respiratory failure, sometimes from cardiac arrest.

#### Conditions Aggravated by Exposure

May cause nervous system disturbances.

#### RTECS Number:

#### Toxicity Data

Intraperitoneal - Mouse: 263 MG/KG (LD50)

Remarks: Behavioral: Convulsions or effect on seizure threshold.

Behavioral: Excitement

Lungs, Thorax, or Respiration: Dyspnea.

### Section 12 - Ecological Information

No data available.

### Section 14 - Transport Information

#### DOT

Proper Shipping Name: Phenol solutions

UN#: 2821

Class: 6.1

Packing Group: Packing Group III

Hazard Label: Toxic Substance

PIH: Not PIH

#### IATA

Proper Shipping Name: Phenol solution

IATA UN Number: 2821

Hazard Class: 6.1

Packing Group: III

---

## Section 15 - Regulatory Information

---

### EU Additional Classification

**Symbol of Danger:** T

**Indication of Danger**

Toxic.

**Risk Statements** R: 23/24/25 48/20/21/22 32 34 68 52/53

Toxic by inhalation, in contact with skin and if swallowed. Harmful: danger of serious damage to health by prolonged exposure through inhalation in contact with skin, and if swallowed. Contact with acids liberates very toxic gas. Causes burns. Possible risk of irreversible effects. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Statements** S: 26 36/37/39 45 61

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

### US Classification and Label Text

**Indication of Danger**

Toxic.

**Risk Statements**

Causes burns. Contact with acids liberates toxic gas.

**Safety Statements**

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection.

**US Statements**

Vesicant. Readily absorbed through skin. Combustible. Target organ(s): Central nervous system. Kidneys.

### United States Regulatory Information

**SARA Listed:** Yes

**Notes:** This product is or contains a component that is subject to SARA313 reporting requirements.

### Canada Regulatory Information

**WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** No

**NDSL:** No

---

## Section 16 - Other Information

---

### Disclaimer

For R&D use only. Not for drug, household or other uses.

### Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.