# Material Safety Data Sheet

Version 4.0
Revision Date 03/31/2010
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## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Folin & Ciocalteu's phenol reagent

Product Number : 47641
Brand : Sigma

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

Telephone : +18003255832
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Emergency Phone # : (314) 776-6555

## 2. HAZARDS IDENTIFICATION

**Emergency Overview**

**OSHA Hazards**
Target Organ Effect, Harmful by ingestion., Corrosive, Teratogen

**Target Organs**

Central nervous system, Kidney, Cardiovascular system., Liver, Blood, Bone marrow

**GHS Label elements, including precautionary statements**

Pictogram

Signal word Danger

Hazard statement(s)
H303 May be harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statement(s)
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:** 0
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
**Skin** May be harmful if absorbed through skin. Causes skin burns.
**Eyes** Causes eye burns.



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**Ingestion** Harmful if swallowed. Causes burns.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| CAS-No. | EC-No. | Index-No. | Concentration |
|---|---|---|---|
| **Lithium sulphate** | | | |
| 10377-48-7 | 233-820-4 | - | 12.2 % |
| **Disodium wolframate dihydrate** | | | |
| 10213-10-2 | 236-743-4 | - | 2 % |
| **Hydrochloric acid** | | | |
| 7647-01-0 | 231-595-7 | 017-002-01-X | 9.5 % |
| **Phosphoric acid** | | | |
| 7664-38-2 | 231-633-2 | 015-011-00-6 | 6.9 % |
| **Water** | | | |
| 7732-18-5 | 231-791-2 | - | 61.2 % |
| **Disodium molybdate dihydrate** | | | |
| 10102-40-6 | 231-551-7 | - | 2 % |

## 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. Consult a physician.

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

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

## 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**Environmental precautions**
Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid inhalation of vapour or mist.
Normal measures for preventive fire protection.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

| Components | CAS-No. | Value | Control parameters | Update | Basis |
|---|---|---|---|---|---|
| Hydrochloric acid | 7647-01-0 | C | 2 ppm | 2007-01-01 | USA. ACGIH Threshold Limit Values (TLV) |
| Remarks | Upper Respiratory Tract irritation Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories. | | | | |
| | | C | 5 ppm<br>7 mg/m3 | 2006-02-28 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| | The value in mg/m3 is approximate. Ceiling limit is to be determined from breathing-zone air samples. | | | | |
| | | C | 5 ppm<br>7 mg/m3 | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| Phosphoric acid | 7664-38-2 | TWA | 1 mg/m3 | 2007-01-01 | USA. ACGIH Threshold Limit Values (TLV) |
| Remarks | Eye, skin, & Upper Respiratory Tract irritation | | | | |
| | | STEL | 3 ppm | 2007-01-01 | USA. ACGIH Threshold Limit Values (TLV) |
| | Eye, skin, & Upper Respiratory Tract irritation | | | | |
| | | TWA | 1 mg/m3 | 1997-08-04 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| | | TWA | 1 mg/m3 | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| | | STEL | 3 mg/m3 | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| Disodium wolframate dihydrate | 10213-10-2 | TWA | 1 mg/m3 | 1994-09-01 | USA. ACGIH Threshold Limit Values (TLV) |
| | | STEL | 3 mg/m3 | 1994-09-01 | USA. ACGIH Threshold Limit Values (TLV) |

**Personal protective equipment**

**Respiratory protection**
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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves.



**Eye protection**
Tightly fitting safety goggles. Faceshield (8-inch minimum).

**Skin and body protection**
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Hygiene measures**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

| | |
|---|---|
| Form | liquid |
| Colour | yellow |
| Odour | pungent |

**Safety data**

| | |
|---|---|
| pH | 0.5 at 20 °C (68 °F) |
| Melting point | no data available |
| Boiling point | no data available |
| Flash point | no data available |
| Ignition temperature | no data available |
| Lower explosion limit | no data available |
| Upper explosion limit | no data available |
| Density | 1.24 g/mL at 20 °C (68 °F) |
| Water solubility | soluble |

## 10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Conditions to avoid**
no data available

**Materials to avoid**
Strong oxidizing agents, Metals

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides, Oxides of phosphorus, Hydrogen chloride gas, Sodium oxides, Lithium oxides, Tungsten oxide, Molybdenum oxides

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**
no data available

**Skin corrosion/irritation**
no data available

**Serious eye damage/eye irritation**
Eyes: no data available

**Respiratory or skin sensitization**
no data available

**Germ cell mutagenicity**
no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

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

**Specific target organ toxicity - single exposure (GHS)**
no data available

**Specific target organ toxicity - repeated exposure (GHS)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

| | |
|---|---|
| **Inhalation** | May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. |
| **Ingestion** | Harmful if swallowed. Causes burns. |
| **Skin** | May be harmful if absorbed through skin. Causes skin burns. |
| **Eyes** | Causes eye burns. |

**Signs and Symptoms of Exposure**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional information**

## 12. ECOLOGICAL INFORMATION

**Toxicity**

no data available

**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**

no data available

## 13. DISPOSAL CONSIDERATIONS

**Product**
Observe all federal, state, and local environmental regulations. 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: 3264 Class: 8 Packing group: III
Proper shipping name: Corrosive, liquid, acidic, inorganic, n.o.s.
Reportable Quantity (RQ): 52632 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

**IMDG**
UN-Number: 3264 Class: 8 Packing group: III. EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Marine pollutant: No

**IATA**
UN-Number: 3264 Class: 8 Packing group: III
Proper shipping name: Corrosive liquid, acidic, inorganic, n.o.s.

## 15. REGULATORY INFORMATION

**OSHA Hazards**
Target Organ Effect, Harmful by ingestion., Corrosive, Teratogen

**DSL Status**
All components of this product are on the Canadian DSL list.

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Hydrochloric acid | 7647-01-0 | 1993-04-24 |

**SARA 311/312 Hazards**
Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Hydrochloric acid | 7647-01-0 | 1993-04-24 |
| Phosphoric acid | 7664-38-2 | 1993-04-24 |

**Pennsylvania Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Hydrochloric acid | 7647-01-0 | 1993-04-24 |
| Water | 7732-18-5 | |
| Lithium sulphate | 10377-48-7 | |
| Phosphoric acid | 7664-38-2 | 1993-04-24 |

**New Jersey Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Hydrochloric acid | 7647-01-0 | 1993-04-24 |
| Water | 7732-18-5 | |
| Disodium molybdate dihydrate | 10102-40-6 | |
| Disodium wolframate dihydrate | 10213-10-2 | |
| Lithium sulphate | 10377-48-7 | |
| Phosphoric acid | 7664-38-2 | 1993-04-24 |

**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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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 Co., 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.