Material Safety Data Sheet

Version 4.0
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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
Fax : +18003255052
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.

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.

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 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 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.

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.

16. OTHER INFORMATION

Further Information

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.