COLUMBUS CHEMICAL INDUSTRIES INC.

Safety Data Sheet

Folin & Ciocalteu Phenol Reagent, 2N

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Folin & Ciocalteu Phenol Reagent, 2N

Synonyms/Generic Names: None

Product Number: 8675

Product Use: Industrial, Manufacturing or Laboratory use

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information Call: 920-623-2140 (Monday-Friday 8:00-4:30)

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS IDENTIFICATION

OSHA Hazards: Corrosive

Target Organs: None

Signal Words: Danger

Pictograms:

GHS Classification:

Skin corrosion	Category 1B
Serious eye damage	Category 1
Specific target organ toxicity-single exposure	Category 3

GHS Label Elements, including precautionary statements:

Hazard Statements:

H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

Precautionary Statements:

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do not induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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/doctor/physician.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulations.

Potential Health Effects

Eyes	Causes severe eye burns.
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.
Ingestion	Harmful if swallowed.

NFPA Ratings

Health	3
Flammability	0
Reactivity	2
Specific hazard	Not Available

HMIS Ratings

Health	3
Fire	0
Reactivity	2
Personal	J

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Water	Balance	7732-18-5	231-791-2	H_2O	18.00 g/mol
Hydrochloric Acid	9-10	7647-01-0	231-595-7	HCl	36.46 g/mol
Sodium Tungstate, Dihydrate	8-9	10213-10-2	236-743-4	$Na_2O_4W \cdot 2H_2O$	329.85 g/mol
Phosphoric Acid	6-7	7664-38-2	231-633-2	H_3PO_4	98.00 g/mol
Sodium Molybdate, Dihydrate	2-3	10102-40-6	231-551-7	$Na_2MoO_4 \cdot 2H_2O$	241.95 g/mol
Lithium Sulfate, Monohydrate	1-2	10377-48-7	233-820-4	$Li_2SO_4 \cdot H_20$	127.96 g/mol

4. FIRST-AID MEASURES

Eyes	Immediately rinse with plenty of water for at least 15 minutes and seek medical attention immediately.
Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Skin	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention immediately.
Ingestion	**Do Not Induce Vomiting!** Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Product is not flammable. Use appropriate media for adjacent fire. Cool containers with water.
Special protective equipment	Wear self-contained, approved breathing apparatus and full protective

and precautions for firefighters	clothing, including eye protection and boots.
Specific hazards arising from the chemical	Emits toxic fumes (hydrogen chloride gas, sodium oxides, tungstate oxides, phosphorus oxides, lithium oxides, sulfur oxides, molybdate oxides) under fire conditions. (See also Stability and Reactivity section).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	See section 8 for recommendations on the use of personal protective equipment.
Environmental precautions	Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.
Methods and materials for containment and cleaning up	Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

7. HANDLING AND STORAGE

Precautions for safe handling
See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of aerosols.

Conditions for safe storage, including any incompatibilities
Store in cool, dry well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls:

Component	Exposure Limits	Basis	Entity
Hydrogen Chloride	2 ppm 2.98 mg/m^3	CEIL	ACGIH
	5 ppm 7 mg/m^3	CEIL	OSHA
	5 ppm 7 mg/m^3	CEIL	NIOSH
	50 ppm	IDLH	OSHA
Sodium Tungstate, Dihydrate	1 mg/m^3	TLV	ACGIH
	3 mg/m^3	STEL	ACGIH
	1 mg/m^3	PEL	OSHA
	3 mg/m^3	STEL	OSHA
	1 mg/m^3	REL	NIOSH
	3 mg/m^3	STEL	NIOSH
Phosphoric Acid	1 mg/m^3	TLV	ACGIH
	3 mg/m^3	STEL	ACGIH
	1 mg/m^3	PEL	OSHA
	1 mg/m^3	REL	NIOSH
	3 mg/m^3	STEL	NIOSH
	1000 mg/m^3	IDLH	OSHA
Sodium Molybdate, Dihydrate	0.5 mg/m^3	TLV	ACGIH

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.
REL: Recommended Exposure Limit
PEL: Permissible Exposure Limit
STEL: Short Term Exposure Limit during x minutes.
IDLH: Immediately Dangerous to Life or Health
WEEL: Workplace Environmental Exposure Levels
CEIL: Ceiling

Personal Protection

Eyes	Wear chemical safety glasses or goggles with face shield.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Wear nitrile or rubber gloves, and full body suit. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Other	Not Available

Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Clear, yellow liquid.
Odor	Not Available
Odor threshold	Not Available
pH	Not Available
Melting point/freezing point	Not Available
Initial boiling point and boiling range	Not Available
Flash point	Not Flammable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable
Upper/lower flammability or explosive limit	Not Explosive
Vapor pressure	Not Available
Vapor density	Not Available
Density	1.1450 (water = 1)
Solubility (ies)	Soluble in water.
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Possibility of Hazardous Reactions	Will not occur.
Conditions to Avoid	Not Available
Incompatible Materials	Strong oxidizing agents, powdered metals, bases, halides, organic materials, carbides, chlorates, fulminates, nitrate, picrates, cyanides, cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide.
Hazardous Decomposition Products	Hydrogen chloride gas, sodium oxides, tungstate oxides, phosphorus oxides, lithium oxides, sulfur oxides, molybdate oxides.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Hydrochloric Acid

Skin	Not Available
Eyes	Not Available
Respiratory	Not Available
Ingestion	LD50 – Rabbit – 900 mg/kg

Sodium Tungstate, Dihydrate

Skin	LDLO Dermal - rat - > 2,000 mg/kg
Eyes	Not Available
Respiratory	LC50 Inhalation - rat - 4 h - > 5,010 mg/m3
Ingestion	LD50 Oral - rat - 1,453 mg/kg
Other	LD50 Intraperitoneal - rat - 204 mg/kg LD50 Subcutaneous - rat - 251 mg/kg LD50 Intraperitoneal - mouse - 145 mg/kg

Phosphoric Acid

Skin	LD50 – Rabbit – 2,740 mg/kg
Eyes	Not Available
Respiratory	Not Available
Ingestion	LD50 – Rat – 1,530 mg/kg

Sodium Molybdate, Dihydrate

Skin	Not Available
Eyes	Not Available
Respiratory	Not Available
Ingestion	Not Available
Other	LD50 Intraperitoneal - rat - 520 mg/kg

Lithium Sulfate, Monohydrate

Skin	Not Available
Eyes	Not Available
Respiratory	Not Available
Ingestion	LD50 Oral - rat - 613 mg/kg

Carcinogenicity

IARC	3: Not classifiable as to its carcinogenicity to humans (hydrochloric acid).
ACGIH	A4: Not classifiable as a human carcinogen (hydrochloric acid).
NTP	No components 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 components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs & Symptoms of Exposure

Skin	Irritation, redness.
Eyes	Irritation, redness, watering eyes.
Respiratory	Irritation, coughing.
Ingestion	Irritation, nausea, vomiting, diarrhea.

Chronic Toxicity	Not Available
Teratogenicity	Not Available
Mutagenicity	Not Available
Embryotoxicity	Not Available
Specific Target Organ Toxicity	Single exposure - respiratory tract irritation.
Reproductive Toxicity	Not Available
Respiratory/Skin Sensitization	Not Available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Hydrochloric Acid

Aquatic Vertebrate	LC50 – Gambusia affinis – 282 mg/L – 96h
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Sodium Tungstate, Dihydrate

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Phosphoric Acid

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Sodium Molybdate, Dihydrate

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	Not Available
Terrestrial	Not Available

Lithium Sulfate, Monohydrate

Aquatic Vertebrate	Not Available
Aquatic Invertebrate	EC50 - Daphnia magna (Water flea) - 196.79 mg/l - 24 h
Terrestrial	Not Available

Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available
Other Adverse Effects	Not Available

13. DISPOSAL CONSIDERATIONS

Waste Residues	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product or residues.
Product Containers	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

US DOT	UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (hydrochloric acid and phosphoric acid), 8, pg II
TDG	UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (HYDROCHLORIC ACID AND PHOSPHORIC ACID), 8, PG II
IMDG	UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (HYDROCHLORIC ACID AND PHOSPHORIC ACID), 8, PG II
Marine Pollutant	No

IATA/ICAO	UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (hydrochloric acid and phosphoric acid), 8, pg II

15. REGULATORY INFORMATION

TSCA Inventory Status	All ingredients are listed on the TSCA inventory.
DSCL (EEC)	All ingredients are listed on the DSCL inventory.
California Proposition 65	Not Listed
SARA 302	Not Listed
SARA 304	Not Listed
SARA 311	Acute Health Hazard
SARA 312	Acute Health Hazard
SARA 313	Listed: Hydrochloric Acid
WHMIS Canada	Class E: Corrosive material. Class D-2A: Material causing other toxic effects (VERY TOXIC).

16. OTHER INFORMATION

Revision	Date
Revision 1	03/04/2013
Revision 2	09/21/2015