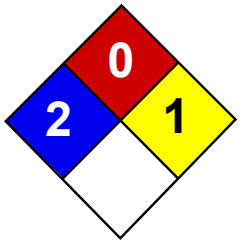

Material Safety Data Sheet
Folin-Ciocalteau Phenol TS MSDS

Section 1: Chemical Product and Company Identification

Product Name: Folin-Ciocalteau Phenol TS

Catalog Codes: 10706

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Bromine; Hydrochloric acid; Phosphoric Acid

CI#: Not available.

Synonym: Folin-Ciocalteau Phenol TS

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

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Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	58.1-86.3
Sodium molybdate (VI) dihydrate	10102-40-6	1.5-3
Bromine	7726-95-6	<1
Lithium sulfate monohydrate	10102-25-7	7.5-15
Hydrogen chloride	7647-01-0	1.85-3.7
Phosphoric Acid	7664-38-2	2.5-5
Sodium tungstate dihydrate	10213-10-2	5-10

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat]. Phosphoric Acid: ORAL (LD50): Acute: 1530 mg/kg [Rat]. DERMAL (LD50): Acute: 2740 mg/kg [Rabbit]. DUST (LC50): Acute: >850 mg/m 1 hours [Rat]. Hydrochloric Acid Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 1 hours [Rat]. Bromine: ORAL (LD50): Acute: 3100 mg/kg [Mouse]. 4160 mg/kg [Rabbit]. 2600 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 750 1 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive). Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified 4 (No evidence.) by NTP, None. by OSHA, None. by NIOSH [Bromine]. Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Lithium sulfate monohydrate]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to mucous membranes. The substance may be toxic to kidneys, the nervous system, liver, cardiovascular system, upper respiratory tract, skin, eyes, , central nervous system (CNS), teeth, thyroid. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Mixtures with nitromethane are explosive (Phosphoric Acid)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Sodium molybdate (VI) dihydrate TWA: 5 (mg/m3) from ACGIH (TLV) [United States] Inhalation Respirable. TWA: 5 (mg/m3) from OSHA (PEL) [United States] Inhalation Respirable. TWA: 15 (mg/m3) from OSHA (PEL) [United States] Inhalation Total. Bromine TWA: 0.66 STEL: 1.3 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.1 STEL: 0.2 (ppm) from ACGIH (TLV) [United States] TWA: 0.1 from OSHA (PEL) [United States] TWA: 0.7 (mg/m3) from OSHA (PEL) [United States] TWA: 0.66 STEL: 2 (mg/m3) [United Kingdom (UK)] TWA: 1 STEL: 0.3 (ppm) [United Kingdom (UK)] Hydrogen chloride STEL: 7.5 (mg/m3) from ACGIH (TLV) [United States] STEL: 5 (ppm) from ACGIH (TLV) [United States] CEIL: 5 (ppm) from NIOSH CEIL: 7.5 (mg/m3) from NIOSH CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] Phosphoric Acid TWA: 1 STEL: 3 (mg/m3) from ACGIH (TLV) [United States] TWA: 1 STEL: 3 (mg/m3) from OSHA (PEL) [United States] TWA: 1 STEL: 3 (mg/m3) from NIOSH TWA: 1 STEL: 3 (mg/m3) [Mexico] Sodium tungstate dihydrate TWA: 5 STEL: 10 (mg/m3) from ACGIH (TLV) [United States] Bromine33

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: Not applicable.

Color: Not available.

pH (1% soln/water): Acidic.

Boiling Point: The lowest known value is 100°C (212°F) (Water).

Melting Point: Not available.

Critical Temperature: Not available.

Specific Gravity: Weighted average: 1.18 (Water = 1)

Vapor Pressure: The highest known value is 2.3 kPa (@ 20°C) (Water).

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Easily soluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances:
Slightly reactive to reactive with oxidizing agents, reducing agents, combustible materials, organic materials, metals, alkalis.

Corrosivity:
Corrosive in presence of aluminum, of zinc, of stainless steel(304), of stainless steel(316). Slightly corrosive in presence of copper. Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available

Special Remarks on Corrosivity: Corrosive to ferrous metals and alloys. (Phosphoric Acid)

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 1530 mg/kg [Rat]. (Phosphoric Acid). Acute dermal toxicity (LD50): 2740 mg/kg [Rabbit]. (Phosphoric Acid).

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 4 (No evidence.) by NTP, None. by OSHA, None. by NIOSH [Bromine]. Classified 3 (Not classifiable for human.) by IARC [Hydrogen chloride]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Lithium sulfate monohydrate]. Contains material which may cause damage to the following organs: kidneys, the nervous system, liver, cardiovascular system, upper respiratory tract, skin, eyes, , central nervous system (CNS), teeth, thyroid.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive, permeator), of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects based on animal data. May cause birth defects based on animal data. May affect genetic material.

Special Remarks on other Toxic Effects on Humans:
Potential Health Effects: Corrosive Skin: Causes severe skin irritation and burns. Eyes: Causes severe irritation eye irritation and burns. Inhalation: Causes respiratory tract and mucous membrane irritation and burns. Ingestion: Causes digestive tract irritation and burns with nausea, vomiting, abdominal pain, diarrhea. May affect behavior/central nervous system(somnolence, excitement, muscle weakness, convulsions, ataxia, impaired concentration, irritability, lethargy, mental confusion, dizziness, headache, fatigue, disorientation, drowsiness, coma, anxiety, spasticity, delirium, stupor, sedation, fine and gross tremor, giddiness, blurred vision, twitching, slurred speech, and apathy, emotional instability), peripheral nervous system, cardiovascular system(cardiac arrhythmias, tachydardia, hypotension), respiration(dyspnea), blood(anemia, changes in serum composition), metabolism, teeth, urinary system(kidneys), liver, endocrine system (thryroid).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification:
: Corrosive liquid, acidic, inorganic, n.o.s.(Phosphoric acid, Hydrochloric Acid) (Phosphoric Acid) UNNA: 3264 PG: II

Special Provisions for Transport: Poison-inhalation hazard, Zone A (Bromine)

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Bromine; Hydrochloric acid; Phosphoric Acid Illinois toxic substances disclosure to employee act: Bromine; Hydrochloric acid; Phosphoric Acid Illinois chemical safety act: Bromine; Hydrochloric acid;

Phosphoric Acid New York release reporting list: Bromine; Hydrochloric acid; Phosphoric Acid Rhode Island RTK hazardous substances: Bromine; Hydrochloric acid; Phosphoric Acid Pennsylvania RTK: Bromine; Hydrochloric acid; Phosphoric Acid Minnesota: Bromine; Hydrochloric acid; Phosphoric Acid Massachusetts RTK: Bromine; Hydrochloric acid; Phosphoric Acid Massachusetts spill list: Bromine; Hydrochloric acid; Phosphoric Acid New Jersey: Bromine; Hydrochloric acid; Phosphoric Acid New Jersey spill list: Bromine; Hydrochloric acid; Phosphoric Acid Louisiana RTK reporting list: Bromine; Hydrochloric acid Louisiana spill reporting: Hydrochloric acid; Phosphoric Acid TSCA 8(b) inventory: Water; Bromine; Hydrochloric acid; Phosphoric Acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Bromine; Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid 7.5%; Phosphoric Acid 3.75% CERCLA: Hazardous substances.: Hydrochloric acid: 5000 lbs. (2268 kg); Phosphoric Acid: 5000 lbs. (2268 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
R23- Toxic by inhalation. R34- Causes burns. R63- Possible risk of harm to the unborn child. S1/2- Keep locked up and out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37- Wear suitable protective clothing and gloves. S39- Wear eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Last Updated: 26/11/2012

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