

## SAFETY DATA SHEET

Preparation Date: 6/15/2018

Revision Date: 6/15/2018

Revision Number: G1

### 1. IDENTIFICATION

#### Product identifier

**Product code:** F-184  
**Product Name:** FOLIN-CIOCALTEAU PHENOL TS, USP TEST SOLUTION

#### Other means of identification

**Synonyms:** No information available  
**CAS #:** Mixture  
**RTECS #** Not available  
**CI#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>  
**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Corrosive to metals	Category 1

#### Label elements

##### **Danger**

##### **Hazard statements**

Harmful if swallowed  
 Causes severe skin burns and eye damage  
 May be corrosive to metals



**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Not available

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Keep only in original container

**Precautionary Statements - Response**

Immediately call a POISON CENTER or doctor/physician  
 Absorb spillage to prevent material damage  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.  
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Wash contaminated clothing before reuse  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.  
 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 Rinse mouth  
 Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up  
 Store in corrosive resistant/ .? container with a resistant inner liner

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight %
Water	7732-18-5	75-82
Lithium Sulfate, Anhydrous	10377-48-7	6-7
Phosphoric Acid	7664-38-2	4-6
Hydrochloric Acid	7647-01-0	4-6
Sodium Tungstate, Dihydrate	10213-10-2	2-4
Sodium Molybdate, Dihydrate	10102-40-6	<1
Bromine	7726-95-6	<1

**4. FIRST AID MEASURES**

### First aid measures

- General Advice:** National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.
- Skin Contact:** Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.
- Eye Contact:** Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.
- Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.
- Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

### Most important symptoms and effects, both acute and delayed

- Symptoms**
- Severe skin and eye irritation or burns
  - Causes digestive (gastrointestinal) tract irritation
  - May cause gastrointestinal (digestive) tract burns
  - May cause cardiovascular effects
  - May cause central nervous system effects
  - May affect the liver
  - It may affect the kidneys

### Indication of any immediate medical attention and special treatment needed

- Notes to Physician:** Treat symptomatically.

### Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

## **5. FIRE-FIGHTING MEASURES**

### Extinguishing Media

- Suitable Extinguishing Media:** If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

- Unsuitable Extinguishing Media:** No information available.

### Specific hazards arising from the chemical

- Hazardous Combustion Products:** No information available.

- Specific hazards:** No information available.

### Special Protective Actions for Firefighters

- Specific Methods:** No information available.

**Special Protective Equipment for Firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Stop leak if you can do it without risk. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container.

**Methods for cleaning up** Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

**Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Do not smoke. Protect from light. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

**Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Protect from light. Sensitive to light. Store in light-resistant containers. Do not store in metal containers. Store away from incompatible materials.

**Incompatible Materials:**

Oxidizing agents  
Metals  
Bases

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### National occupational exposure limits

**United States**

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Water	7732-18-5	None	None	None	None
Lithium Sulfate, Anhydrous	10377-48-7	None	None	None	None

Phosphoric Acid	7664-38-2	1 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL	3 mg/m <sup>3</sup> STEL 1 mg/m <sup>3</sup> TWA	None
Hydrochloric Acid	7647-01-0	5 ppm Ceiling 7 mg/m <sup>3</sup> Ceiling	5 ppm Ceiling 7 mg/m <sup>3</sup> Ceiling	2 ppm Ceiling	Not determined
Sodium Tungstate, Dihydrate	10213-10-2	None	None	3 mg/m <sup>3</sup> STEL (as W) 1 mg/m <sup>3</sup> TWA (as W)	None
Sodium Molybdate, Dihydrate	10102-40-6	5 mg/m <sup>3</sup> TWA (respirable as Mo) (molybdenum compounds)	None	0.5 mg/m <sup>3</sup> TWA (respirable as Mo) (molybdenum compounds)	None
Bromine	7726-95-6	0.1 ppm TWA 0.7 mg/m <sup>3</sup> TWA	= 0.1 ppm TWA	= 0.2 ppm STEL	None

### Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Water	7732-18-5	None	None	None	None
Lithium Sulfate, Anhydrous	10377-48-7	None	None	None	None
Phosphoric Acid	7664-38-2	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL	1 mg/m <sup>3</sup> TWAEV 3 mg/m <sup>3</sup> STEV
Hydrochloric Acid	7647-01-0	2 ppm Ceiling 3 mg/m <sup>3</sup> Ceiling	2 ppm Ceiling	2 ppm Ceiling	5 ppm Ceiling 7.5 mg/m <sup>3</sup> Ceiling
Sodium Tungstate, Dihydrate	10213-10-2	3 mg/m <sup>3</sup> STEL (as W) 1 mg/m <sup>3</sup> TWA (as W)	3 mg/m <sup>3</sup> STEL (as W) 1 mg/m <sup>3</sup> TWA (as W)	3 mg/m <sup>3</sup> STEL (as W) 1 mg/m <sup>3</sup> TWA (as W)	3 mg/m <sup>3</sup> STEV (as W) 1 mg/m <sup>3</sup> TWAEV (as W)
Sodium Molybdate, Dihydrate	10102-40-6	0.5 mg/m <sup>3</sup> TWA (respirable as Mo) (molybdenum compounds)	0.5 mg/m <sup>3</sup> TWA (respirable as Mo) (molybdenum compounds)	0.5 mg/m <sup>3</sup> TWA (respirable as Mo) (molybdenum compounds)	0.5 mg/m <sup>3</sup> TWAEV (respirable as Mo) (molybdenum compounds)
Bromine	7726-95-6	= 0.1 ppm TWA = 0.7 mg/m <sup>3</sup> TWA	= 0.1 ppm TWA	0.1 ppm TWA	0.1 ppm TWAEV 0.66 mg/m <sup>3</sup> TWAEV 0.2 ppm STEV 1.3 mg/m <sup>3</sup> STEV

### Australia and Mexico

Components	CAS-No.	Australia	Mexico
Water	7732-18-5	None	None
Lithium Sulfate, Anhydrous	10377-48-7	None	None
Phosphoric Acid	7664-38-2	3 mg/m <sup>3</sup> STEL 1 mg/m <sup>3</sup> TWA	1 mg/m <sup>3</sup> TWA 3 mg/m <sup>3</sup> STEL
Hydrochloric Acid	7647-01-0	5 ppm Peak 7.5 mg/m <sup>3</sup> Peak	5 ppm Ceiling 7 mg/m <sup>3</sup> Ceiling
Sodium Tungstate, Dihydrate	10213-10-2	3 mg/m <sup>3</sup> STEL (as W) 1 mg/m <sup>3</sup> TWA (as W)	3 mg/m <sup>3</sup> STEL (as W) 1 mg/m <sup>3</sup> TWA (as W)
Sodium Molybdate, Dihydrate	10102-40-6	5 mg/m <sup>3</sup> TWA (as Mo) (molybdenum compounds)	None
Bromine	7726-95-6	2 mg/m <sup>3</sup> STEL 0.3 ppm STEL 0.1 ppm TWA 0.66 mg/m <sup>3</sup> TWA	= 0.1 ppm TWA = 0.7 mg/m <sup>3</sup> TWA

### Appropriate engineering controls

#### Engineering measures to reduce exposure:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

#### Individual protection measures, such as personal protective equipment

#### Personal Protective Equipment

<b>Eye protection:</b>	Goggles or Face-shield
<b>Skin and body protection:</b>	Chemical resistant apron Long sleeved clothing Gloves If working with large quantities: Chemical resistant protective suit
<b>Respiratory protection:</b>	Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
<b>Hygiene measures:</b>	Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b> Liquid	<b>Appearance:</b> No information available.	<b>Color:</b> Yellow.
<b>Odor:</b> Pungent.	<b>Taste</b> No information available.	<b>Formula:</b> No information available
<b>Molecular/Formula weight:</b> No information available	<b>Flammability:</b> Non-flammable	<b>Flashpoint (°C/°F):</b> No information available.
<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> No information available	<b>Lower Explosion Limit (%):</b> No information available
<b>Upper Explosion Limit (%):</b> No information available	<b>Melting point/range(°C/°F):</b> No information available	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Boiling point/range(°C/°F):</b> 100°C/ 212°F (water)	<b>Bulk density:</b> No information available	<b>Density (g/cm3):</b> No information available
<b>Specific gravity:</b> 1.18-1.24	<b>pH:</b> No information available	<b>Vapor pressure @ 20°C (kPa):</b> No information available
<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available	<b>VOC content (g/L):</b> No information available
<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> No information available	<b>Viscosity:</b> No information available
<b>Miscibility:</b> No information available	<b>Solubility:</b> Easily soluble in cold water Easily soluble in hot water	

## 10. STABILITY AND REACTIVITY

### Reactivity

No information available

### Chemical stability

**Stability:** Sensitive to light. Exposure to light accelerates decomposition. Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Exposure to light. Incompatible materials.

**Product code:** F-184

**Product name:** FOLIN-CIOCALTEAU  
PHENOL TS, USP TEST SOLUTION

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**Incompatible Materials:** Oxidizing agents  
Metals  
Bases

**Hazardous decomposition products:** No information available.

**Other Information**  
**Corrosivity:** No information available

**Special Remarks on Corrosivity:** Corrosive to ferrous metals and alloys

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**  
Eyes. Skin. Inhalation. Ingestion.

### Acute Toxicity

#### Component Information

Water	
CAS-No.	7732-18-5

**LD50/oral/rat** = > 90 mL/kg Oral LD50 Rat  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = No information available  
**LC50/inhalation/mouse** = No information available  
**Other LD50 or LC50 information** = No information available

Lithium Sulfate, Anhydrous	
CAS-No.	10377-48-7

**LD50/oral/rat** = 613 mg/kg Oral LD50 Rat  
**LD50/oral/mouse** = 1190 mg/kg Oral LD50 Mouse  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = No information available  
**LC50/inhalation/mouse** = No information available  
**Other LD50 or LC50 information** = No information available

Phosphoric Acid	
CAS-No.	7664-38-2

**LD50/oral/rat** = 1530 mg/kg Oral LD50 Rat  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = 2730 mg/kg Dermal LD50 Rabbit; 2740 mg/kg Dermal LD50 Rabbit  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = >850 mg/m<sup>3</sup> Inhalation LC50 Rat 1 h  
**LC50/inhalation/mouse** = No information available  
**Other LD50 or LC50 information** = No information available

Hydrochloric Acid	
CAS-No.	7647-01-0

**LD50/oral/rat** = 238 - 277 mg/kg Oral LD50 Rat  
700 mg/kg (test substance: 31.5% hydrochloric acid solution)  
**LD50/oral/mouse** = No information available

**LD50/dermal/rabbit** = >5010 mg/kg Dermal LD50 Rabbit (Test substance: 31.5% hydrochloric acid solution - from European Chemicals Bureau IUCLID datasheet)

**LD50/dermal/rat** = > 5010 mg/kg Dermal LD50 = 1.68 mg/L Inhalation LC50 238 - 277 mg/kg Oral LD50

**LC50/inhalation/rat** = 3124 ppm Inhalation LC50 Rat 1 h

1.68 mg/L Inhalation LC50 1 h

1562 ppm 4 h (for hydrogen chloride)

**LC50/inhalation/mouse** = 1108 ppm 1 h (hydrogen chloride)

**Other LD50 or LC50 information** = 900 mg/kg oral LD50 Rabbit (no information on test substance)

Sodium Tungstate, Dihydrate

CAS-No. | 10213-10-2

**LD50/oral/rat** = No information available

**LD50/oral/mouse** = No information available

**LD50/dermal/rabbit** = No information available

**LD50/dermal/rat** = No information available

**LC50/inhalation/rat** = No information available

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = 1190 mg/kg or LD50 rat (Sodium tungstate, anhydrous (CAS no. 13472-45-2))

Sodium Molybdate, Dihydrate

CAS-No. | 10102-40-6

**LD50/oral/rat** = 4233 mg/kg Oral LD50 Rat (vendor)

**LD50/oral/mouse** = No information available

**LD50/dermal/rabbit** = No information available

**LD50/dermal/rat** = >2000 mg/kg Dermal LD50 Rat (vendor)

**LC50/inhalation/rat** = >1.93 mg/l Inhalation LD50 Rat 4 hr (vendor)

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = No information available

Bromine

CAS-No. | 7726-95-6

**LD50/oral/rat** = 1700 mg/kg Oral LD50 Rat

**LD50/oral/mouse** = 3100 mg/kg Oral LD50 Mouse

**LD50/dermal/rabbit** = No information available

**LD50/dermal/rat** = No information available

**LC50/inhalation/rat** = 2700 mg/m<sup>3</sup> Inhalation LC50

**LC50/inhalation/mouse** = 2900 mg/m<sup>3</sup> Inhalation LC50 Mouse

**Other LD50 or LC50 information** = No information available

## Product Information

**LD50/oral/rat** =

**VALUE- Acute Tox Oral** = No information available

**LD50/oral/mouse** =

**Value - Acute Tox Oral** = No information available

**LD50/dermal/rabbit**

**VALUE-Acute Tox Dermal** = No information available

**LD50/dermal/rat**

**VALUE -Acute Tox Dermal** = No information available

**LC50/inhalation/rat**

**VALUE-Vapor** = No information available

**VALUE-Gas** = No information available

**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**

**VALUE-Vapor** = No information available

**Product code:** F-184

**Product name:** FOLIN-CIOCALTEAU  
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VALUE - Gas = No information available  
 VALUE - Dust/Mist = No information available

**Symptoms**

**Skin Contact:** Causes severe irritation and burns.  
**Eye Contact:** Causes severe irritation and burns.  
**Inhalation** Irritating to respiratory system.  
**Ingestion** Causes gastrointestinal tract irritation with abdominal pain, nausea, vomiting, diarrhea and possible burns. 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, tachycardia, hypotension), respiration (dyspnea), blood (anemia, changes in serum composition), metabolism, teeth, urinary system (kidneys), liver, endocrine system (thyroid).  
**Aspiration hazard** No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity** No information available.  
**Sensitization:** No information available.  
**Mutagenic Effects:** May affect genetic material  
 Experiments with bacteria and/or yeast have shown mutagenic effects  
**Carcinogenic effects:** Not considered carcinogenic.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Lithium Sulfate, Anhydrous	10377-48-7	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Phosphoric Acid	7664-38-2	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Hydrochloric Acid	7647-01-0	Monograph 54 [1992]	A4 Not Classifiable as a Human Carcinogen	No information	No information	No information	No information
Sodium Tungstate, Dihydrate	10213-10-2	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Sodium Molybdate, Dihydrate	10102-40-6	Not listed	A3 - Confirmed animal carcinogen with unknown relevance to humans (molybdenum soluble compounds)	Not listed	Not listed	Not listed	Not listed
Bromine	7726-95-6	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

**Reproductive toxicity** No data is available

**Reproductive Effects:** May cause adverse reproductive effects based on animal data  
**Developmental Effects:** No information available  
**Teratogenic Effects:** May cause birth defects (teratogenic effects) based on animal test data

**Specific Target Organ Toxicity**

**STOT - single exposure** kidney. Nervous System. liver. Cardiovascular system. Respiratory Tract. Skin. Eyes. central nervous system. Teeth. Thyroid.

**STOT - repeated exposure** No information available.

**Target Organs:** Kidneys. Nervous system. Liver. Cardiovascular system. Respiratory system. Skin. Eyes. Central nervous system. Teeth. Thyroid.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** Aquatic environment.

*Phosphoric Acid - 7664-38-2*  
**Freshwater Fish Species Data:** 3 - 3.5 mg/L LC50 Gambusia affinis 96 h 1  
**Water Flea Data:** 4.6 mg/L EC50 Daphnia magna 12 h  
*Hydrochloric Acid - 7647-01-0*  
**Freshwater Fish Species Data:** 282 mg/L LC50 Gambusia affinis 96 h static 1

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility:** No information available.

**13. DISPOSAL CONSIDERATIONS**

**Disposal Methods**

**Waste from residues / unused products:**  
 Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**  
 Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Water	7732-18-5	None	None	None	None
Lithium Sulfate, Anhydrous	10377-48-7	None	None	None	None
Phosphoric Acid	7664-38-2	None	None	None	None
Hydrochloric Acid	7647-01-0	None	None	None	None
Sodium Tungstate, Dihydrate	10213-10-2	None	None	None	None
Sodium Molybdate, Dihydrate	10102-40-6	None	None	None	None
Bromine	7726-95-6	None	None	None	None

**14. TRANSPORT INFORMATION**

**DOT**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Subsidiary Class:** No information available  
**Packing group:** II  
**Emergency Response Guide Number:** 154  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions Symbol(s):** B2, IB2, T11, TP2, TP27  
[DOT]: (G) - Identifies proper shipping names for which one or more technical names of the hazardous material must be entered in parentheses, in association with the basic description.  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric Acid, Hydrochloric Acid), 8, II

**TDG (Canada)**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No Information available  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric Acid, Hydrochloric Acid), 8, II

**ADR**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Packing Group:** II  
**Subsidiary Risk:** No information available  
**Special Provisions:** 274  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric Acid, Hydrochloric Acid), 8, II, ENVIRONMENTALLY HAZARDOUS

**IMO / IMDG**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Marine Pollutant:** No information available  
**EMS:** F-A  
**Special Provisions:** 274  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (BROMINE), 8, II, Marine pollutant

**RID**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Special Provisions:** 274  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric Acid, Hydrochloric Acid), 8, II, ENVIRONMENTALLY HAZARDOUS

**ICAO**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric Acid, Hydrochloric Acid), 8, II  
**Special Provisions** A3

**IATA**

**UN-No:** UN3264  
**Proper Shipping Name:** Corrosive liquid, acidic, inorganic, n.o.s.(phosphoric acid; hydrochloric acid)  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** II  
**ERG Code:** 8L  
**Special Provisions** No information available  
**Description:** UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (Phosphoric Acid, Hydrochloric Acid), 8, II

**15. REGULATORY INFORMATION****International Inventories**

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Water</i>	7732-18-5	Present(ACTIVE)	Present KE-35400	Present	Not present	Present	Present	Present 231-791-2
<i>Lithium Sulfate, Anhydrous</i>	10377-48-7	Present(ACTIVE)	Present KE-22591	Present	Present (1)-769	Present	Present	Present 233-820-4
<i>Phosphoric Acid</i>	7664-38-2	Present(ACTIVE)	Present KE-27427	Present	Present (1)-422	Present	Present	Present 231-633-2
<i>Hydrochloric Acid</i>	7647-01-0	Present(ACTIVE)	Present KE-20189	Present	Present (1)-215	Present	Present	Present 231-595-7
<i>Sodium Tungstate, Dihydrate</i>	10213-10-2	Not listed. Sodium Tungstate dihydrate (CAS no. 10213-10-2) is exempt from TSCA 8(b) Inventory listing since it is a hydrate. However the anhydrous form (CAS no. 13472-45-2) is listed as ACTIVE on the TSCA 8(b) Inventory	Not present	Present	Present (1)-794	Present	Present	Not present
<i>Sodium Molybdate, Dihydrate</i>	10102-40-6	Not listed. Sodium Molybdate dihydrate (CAS no. 10102-40-6) is exempt from TSCA 8(b) Inventory listing since it is a hydrate.	Not present	Present	Present (1)-478	Present	Present	Not present

		However the anhydrous form (CAS no. 7631-95-0) is listed as ACTIVE on the TSCA 8(b) Inventory						
Bromine	7726-95-6	Present(ACTIVE)	Present KE-03605	Present	Not present	Present	Present	Present 231-778-1

## U.S. Regulations

### Phosphoric Acid

**Massachusetts RTK:** Present

**New Jersey RTK Hazardous Substance List:** 1516

**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present

**Pennsylvania RTK:** Environmental hazard

**Pennsylvania RTK - Environmental Hazard List** Present

**Minnesota - Hazardous Substance List:** Present

**New York Release Reporting - List of Hazardous Substances:**

5000 lb RQ

100 lb RQ

**Louisiana Reportable Quantity List for Pollutants:** Listed

**California Directors List of Hazardous Substances:** Present

**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 182.1073

**FDA - 21 CFR - Total Food Additives** 133.123, 133.124, 133.129, 133.169, 133.173, 133.178, 133.179, 163.110, 163.111, 163.112, 175.300, 177.2260, 178.1010, 178.3520, 182.1073, 73.275, 73.85

### Hydrochloric Acid

**Massachusetts RTK:** Present

**Massachusetts EHS:** Present

**New Jersey RTK Hazardous Substance List:** 1012

**New Jersey (EHS) List:** 1012 500 lb TPQ

2909 500 lb TPQ

**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present

**New Jersey TCPA - EHS:** 15000lbTQ

5000lbTQ

5600lbTQ

2000lbTQ

**Pennsylvania RTK:** Environmental hazard

**Pennsylvania RTK - Environmental Hazard List** Present

**Minnesota - Hazardous Substance List:** Present

**New York Release Reporting - List of Hazardous Substances:**

5000 lb RQ

100 lb RQ

**Louisiana Reportable Quantity List for Pollutants:** 5000lbfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4

2270kgfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4

5000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into or onto all media within any consecutive 24-hour period

1000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into the atmosphere

**California Directors List of Hazardous Substances:** Present

**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 182.1057

**FDA - 21 CFR - Total Food Additives** 133.129, 155.191, 155.194, 160.105, 160.185, 172.560, 172.892, 182.1057

### Sodium Tungstate, Dihydrate

**Minnesota - Hazardous Substance List:** Present (as W)(Tungsten compounds)

**California Directors List of Hazardous Substances:** Present (except when encapsulated in a capsule which meets the definition of Special Form Materials prescribed in 49 CFR 173.403(z))(Tungsten compounds)

### Sodium Molybdate, Dihydrate

**California Directors List of Hazardous Substances:** Present (molybdenum compounds)

### Bromine

**Massachusetts RTK:** Present

**New Jersey RTK Hazardous Substance List:** 0252

**New Jersey (EHS) List:** 0252 500 lb TPQ

**New Jersey - Discharge Prevention - List of Hazardous Substances:** Present

**New Jersey TCPA - EHS:** =1000lbTQ

**Pennsylvania RTK:** Environmental hazard

**Pennsylvania RTK - Environmental Hazard List** Present

Pennsylvania RTK - Special Hazardous Substances Present  
 Minnesota - Hazardous Substance List: Present  
 New York Release Reporting - List of Hazardous Substances:  
 = 1 lb RQ  
 California Directors List of Hazardous Substances: Present

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**

**Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Water	7732-18-5	Not Listed	Not Listed	Not Listed	Not Listed
Lithium Sulfate, Anhydrous	10377-48-7	Not Listed	Not Listed	Not Listed	Not Listed
Phosphoric Acid	7664-38-2	Not Listed	Not Listed	Not Listed	Not Listed
Hydrochloric Acid	7647-01-0	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Tungstate, Dihydrate	10213-10-2	Not Listed	Not Listed	Not Listed	Not Listed
Sodium Molybdate, Dihydrate	10102-40-6	Not Listed	Not Listed	Not Listed	Not Listed
Bromine	7726-95-6	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Water	7732-18-5	None	None	None	None	None
Lithium Sulfate, Anhydrous	10377-48-7	None	None	None	None	None
Phosphoric Acid	7664-38-2	5000 lb final RQ 2270 kg final RQ	None	None	None	None
Hydrochloric Acid	7647-01-0	5000 lb final RQ 2270 kg final RQ	5000 lb EPCRA RQ	None	None	1.0 % de minimis concentration
Sodium Tungstate, Dihydrate	10213-10-2	None	None	None	None	None
Sodium Molybdate, Dihydrate	10102-40-6	None	None	None	None	None
Bromine	7726-95-6	None	500 lb TPQ 500	None	None	1.0 % de minimis concentration

**U.S. TSCA**

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Water	7732-18-5	Not Applicable	Not Applicable
Lithium Sulfate, Anhydrous	10377-48-7	Not Applicable	Not Applicable
Phosphoric Acid	7664-38-2	Not Applicable	Not Applicable
Hydrochloric Acid	7647-01-0	Not Applicable	Not Applicable
Sodium Tungstate, Dihydrate	10213-10-2	Not Applicable	Not Applicable
Sodium Molybdate, Dihydrate	10102-40-6	Not Applicable	Not Applicable
Bromine	7726-95-6	Not Applicable	Not Applicable

**Canada**

**WHMIS 2015 - GHS Classifications**

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

Component  
 Water  
 7732-18-5 ( 75-82 )  
 Phosphoric Acid  
 7664-38-2 ( 4-6 )

WHMIS 2015 Hazard Classification  
 Not a dangerous product according to HPR classification criteria

Hydrochloric Acid  
 7647-01-0 ( 4-6 )

Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.  
 Gases under pressure - Liquefied gas: H280 Contains gas under pressure, may explode when heated.; Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Inhalation - Category 3: H331 Toxic if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.  
 Acute toxicity - Oral - Category 4: H302 Harmful if swallowed.

Sodium Tungstate, Dihydrate  
 10213-10-2 ( 2-4 )  
 Bromine  
 7726-95-6 ( <1 )

Acute toxicity - Inhalation - Category 2: H330 Fatal if inhaled.; Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.; Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

**WHMIS 1988 Hazard Class**

The classification of this product has not been validated yet

**Components**

**Water**  
  
**Lithium Sulfate, Anhydrous**  
  
**Phosphoric Acid**  
  
**Hydrochloric Acid**

WHMIS 1988  
 Uncontrolled product according to WHMIS classification criteria  
 Uncontrolled product according to WHMIS classification criteria anhydrous  
 E including 5-35% in aqueous solution, 35%, aqueous solution 35-80%, 85% or less  
 A,D1A,E  
 D1A,E  
 E 0.036% in aqueous solution, 0.36% in aqueous solution, 3.6% in aqueous solution  
 D1B,E 28% in aqueous solution  
 D1A,E 31.45% in aqueous solution, 35.2% in aqueous solution  
 D1B  
 D1A E

**Canada Controlled Products Regulation:**

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Phosphoric Acid	1 %
Hydrochloric Acid	1 %
Sodium Tungstate, Dihydrate	1%
Bromine	1 %

**Inventory**

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Water	7732-18-5	Present	Not Listed
Lithium Sulfate, Anhydrous	10377-48-7	Present	Not Listed

Phosphoric Acid	7664-38-2	Present	Not Listed
Hydrochloric Acid	7647-01-0	Present	Not Listed
Sodium Tungstate, Dihydrate	10213-10-2	Not Listed	Not Listed
Sodium Molybdate, Dihydrate	10102-40-6	Not Listed	Not Listed
Bromine	7726-95-6	Present	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Water	7732-18-5	Not listed
Lithium Sulfate, Anhydrous	10377-48-7	Not listed
Phosphoric Acid	7664-38-2	Not listed
Hydrochloric Acid	7647-01-0	Not listed
Sodium Tungstate, Dihydrate	10213-10-2	Not listed
Sodium Molybdate, Dihydrate	10102-40-6	Not listed
Bromine	7726-95-6	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Water	7732-18-5	Not listed
Lithium Sulfate, Anhydrous	10377-48-7	Not listed
Phosphoric Acid	7664-38-2	Not listed
Hydrochloric Acid	7647-01-0	Not listed
Sodium Tungstate, Dihydrate	10213-10-2	Not listed
Sodium Molybdate, Dihydrate	10102-40-6	Not listed
Bromine	7726-95-6	Not listed

## EU Classification

### EU GHS - SV - CLP 1272/2008

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Water	7732-18-5	
Lithium Sulfate, Anhydrous	10377-48-7	
Phosphoric Acid	7664-38-2	Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C >= 25 %)015-011-00-6 Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C >= 25 %); Skin corrosion/irritation - Skin Irrit. 2: H315 Causes skin irritation. (10 % <= C <25 %); Serious Eye Damage/Eye Irritation - Eye Irrit. 2: H319 Causes serious eye irritation. (10 % <= C <25 %)015-011-00-6
Hydrochloric Acid	7647-01-0	Gases under pressure: H280 Contains gas under pressure, may explode when heated.; Acute toxicity - Inhalation - Acute Tox. 3: H331 Toxic if inhaled. (Minimum classification); Skin corrosion/irritation - Skin Corr. 1A: H314 Causes severe skin burns and eye damage.017-002-00-2
Sodium Tungstate, Dihydrate	10213-10-2	No information
Sodium Molybdate, Dihydrate	10102-40-6	
Bromine	7726-95-6	

### EU - CLP (1272/2008)

#### R-phrases(s)

R20 - Harmful by inhalation.

R22 - Harmful if swallowed.

R35 - Causes severe burns.

R63 - Possible risk of harm to the unborn child.



**S -phrase(s)**

S 9 - Keep container in a well-ventilated place.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 1/2 - Keep locked up and out of the reach of children.

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Water	7732-18-5		No information	
Lithium Sulfate, Anhydrous	10377-48-7		No information	
Phosphoric Acid	7664-38-2	C; R34	10%<=C<25% Xi; R36/38 25%<=C C; R34	S(1/2) S26 S45
Hydrochloric Acid	7647-01-0	Hydrogen Chloride T; R23 C; R35 Hydrochloric Acid: + hydrochloric acid ...% C; R34 - Xi; R37 Concentration Limit(s): C >= 25 % C; R34-37 10 % <= C < 25 % Xi; R36/37/38	Hydrogen Chloride: 0.02%<=C<0.2% Xi;R36/37/38 0.2%<=C<0.5% C;R34 0.5%<=C<1% C;R20-34 1%<=C<5% C;R20-35 5%<=C T;C;R23-35	For Hydrogen Chloride: S1/2 S9 S26 S36/37/39 S45 Hydrochloric Acid: S(1/2)-S26-S45
Sodium Tungstate, Dihydrate	10213-10-2		No information	
Sodium Molybdate, Dihydrate	10102-40-6		No information	
Bromine	7726-95-6	T+; R26 C; R35 N; R50	No information	S1/2 S7/9 S26 S45 S61

The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

T - Toxic

T

**16. OTHER INFORMATION**

**Preparation Date:** 6/15/2018  
**Revision Date:** 6/15/2018  
**Prepared by:** Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this

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**End of Safety Data Sheet**