



# Teco Diagnostics

Clinical Reagent Specialists

Form	QL801-039
Revision	A
Prepared by	Brian Anderson
Approved by	Owen Bry
Issue date	1/14/2011

[MSDS]

## Inorganic Phosphorus (UV)

1268 N. Lakeview Ave. Anaheim, CA 92807 Phone: (714) 463-1111 Fax: (714) 463-1169 www.tecodiag.com

### Section 1 – Product and Company Information

<b>Product Name</b> <b>Catalog Number</b> <b>Product Type</b>	<b>Inorganic Phosphorus (UV)</b> I516-480 Clinical Chemistry Reagent	<b>Emergency Telephone No.</b> CHEMTREC (800) 424-9300 International CHEMTREC (703) 527-3887
<b>Company Name</b> <b>Street Address</b> <b>City, State, Zip Code, Country</b>	Teco Diagnostics 1268 N. Lakeview Avenue Anaheim, CA 92807 USA	<b>Company Telephone No.</b> (800) 222-9880 or (714) 693-7788 Monday - Friday 8:00-4:30 PST Fax No. (714) 693-3838

### Section 2 – Composition/Information on Ingredients

	Chemical Names	Concentration	CAS#
Inorganic Phos. (UV) Reagent (Mixture):	Sulfuric acid	210 mM diluted in water (4.2%)	7664-93-9
	Ammonium molybdate	0.4 mM diluted in water (<0.01%)	7782-91-4
Inorganic Phos. (UV) Standard:	Potassium phosphate	5 mg/dl	7778-77-0
Other components either non-hazardous or at concentrations below that requiring hazardous listing.			

### Section 3 – Hazards Identification

<b>Emergency Overview:</b> Note: The following information applies to the component materials at higher concentrations than present in the reagent or standard. Although lower concentrations are present in the reagent or standard, appropriate safety precautions should still be taken.			
Sulfuric acid:	Highly Toxic (USA) Toxic (EU). Causes severe burns. Toxic by inhalation. Target organ(s): Teeth. Cardiovascular system.		
Ammonium molybdate:	Caution: Avoid contact and inhalation.		
Potassium phosphate:	N/A		
<b>HMIS Rating and NFPA Rating</b>	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>
Sulfuric acid:	3	0	2
Ammonium molybdate:	1	0	0
Potassium phosphate:	0	0	1
For additional information on toxicity, please refer to section 11.			

### Section 4 – First Aid Measures

<b>Oral Exposure</b> If swallowed, wash out mouth with water provided person is conscious. Call a physician.
<b>Inhalation Exposure</b> If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
<b>Dermal Exposure</b> In case of skin contact, flush with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.
<b>Eye Exposure</b> In case of contact with eyes, flush with plenty of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

### Section 5- Fire and Explosive Hazard Data

<b>Conditions of Flammability</b> Sulfuric acid: Strong dehydrating agent which may cause ignition of finely divided materials on contact.		
<b>Flash Point</b> N/A	<b>Autoignition Temp</b> N/A	<b>Flammability</b> N/A
<b>Extinguishing Media</b> Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.		
<b>Firefighting Measures</b> Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.		



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**Section 6 – Accidental Release Measures**

**Procedure to be Followed in Case of**

**Leak or Spill**

Ventilate the area.

**Procedures of Personal Precaution**

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation. Wear personal protective equipment. Refer to section 8.

**Methods for Cleaning Up and Disposal**

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete. Follow federal, state and local disposal regulations.

**Section 7 – Handling and Storage**

**Handling**

Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure. Avoid inhalation or ingestion. Do not pipette by mouth. Wash thoroughly after handling.

**Storage**

Store according to package directions. Keep tightly closed.

**Section 8 – Exposure Controls / PPE**

**Engineering Controls**

Safety shower and eyewash. Good general ventilation.

**Personal Protective Equipment**

Respiratory Protection: None required where adequately ventilated  
Protective Clothing: Lab coat  
Protective Gloves: Latex or rubber gloves  
Eye: Chemical safety goggles with side shields recommended.  
Other protective equipment: Use a safety pipette device.

**General Hygiene Measures**

Wash contaminated clothing before reuse

**Exposure Limits (RTECS): Sulfuric acid**

Country	Source	Type	Value	Remarks
USA	ACGIH	STEL	3 MG/M3	---
USA	ACGIH	TWA	0.2 MG/M3	---
USA	MSHA Standard-air	TWA	1 MG/M3	---
USA	OSHA	PEL	8H TWA 1 MG/M3	---
New Zealand	OEL	---	---	Check ACGIH TLV
USA	NIOSH	TWA	1 MG/M3	

**Exposure Limits: Sulfuric acid**

Country	Source	Type	Value
Poland	---	NDS	1 MG/M3
Poland	---	NDSch	3 MG/M3
Poland	---	NDSP	--

**Section 9 - Physical Data**

<b>Appearance</b> Reagent: Light blue liquid Standard: Clear liquid	<b>Boiling Point</b> Sulfuric acid: 100°C	<b>Melting Point</b> Sulfuric acid: 10°C Potassium Phosphate: 252.6 °C	<b>Specific Gravity (g/cm<sup>3</sup>)</b> Sulfuric acid: 1.84 Ammonium molybdate: 3.1 Potassium Phosphate: 2.338
<b>Vapor Pressure</b> Sulfuric acid: 1 mmHg at 145.8°C	<b>Vapor Density</b> Sulfuric acid: <0.3 g/L at 25 °C Ammonium molybdate: 6.2 g/l	<b>Solubility</b> Solubility in Water: Soluble	

**Section 10 – Stability and Reactivity**

<b>Stability</b>		
<b>Chemical</b>	<b>Stable</b>	<b>Materials to Avoid</b>
Sulfuric acid:	Stable	Bases, Halides, Organic materials Incompatible with carbides, chlorates, fulminates, nitrates, picrates, cyanides, alkali halides, zinc iodide, permanganates, hydrogen peroxide, azides, perchlorates, nitromethane, phosphorous, and nitrites. Violent reaction with: cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, and phosphorous (III) oxide, Finely powdered metals
Ammonium molybdate:	Stable	Strong bases, strong oxidizing agents.
Potassium Phosphate	Stable	Strong oxidizing agents.
<b>Hazardous Decomposition Products</b> Sulfuric acid → Sulfur oxides, Hydrogen sulfide gas. Ammonium molybdate → Carbon monoxide, Carbon dioxide.		<b>Hazardous Polymerization</b> Hazardous Polymerization: Will not occur.



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Potassium Phosphate → Phosphorous oxides, Potassium oxides.

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**Section 11 – Toxicological information**

(Note: The following information applies to the component materials at higher concentrations than present in the reagent or standard. Although lower concentrations are present in the reagent or standard, appropriate safety precautions should still be taken.)

<p><b>Route of exposure</b> <b>Sulfuric acid:</b> Skin Contact: Causes burns. Skin Absorption: May be harmful if absorbed through the skin. Eye Contact: Causes burns. Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be toxic by inhalation. Ingestion: May be harmful if swallowed. Ingestion of small quantities is usually nonfatal unless aspiration occurs. Aspiration may lead to chemical pneumonitis which is characterized by pulmonary edema and hemorrhage and may be fatal.</p>	<p><b>Signs and Symptoms of Exposure</b> <b>Sulfuric acid:</b> Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. To the best of our knowledge, the chemical, physical and toxicological properties of have not been thoroughly investigated.</p>
<p><b>Route of exposure</b> <b>Ammonium molybdate, Potassium phosphate:</b> Skin Contact: May cause skin irritation. Skin Absorption: May be harmful if absorbed through the skin. Eye Contact: May cause eye irritation. Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract. Ingestion: May be harmful if swallowed.</p>	<p><b>Signs and Symptoms of Exposure</b> <b>Ammonium molybdate, Potassium phosphate:</b> To the best of our knowledge, the chemical, physical and toxicological properties of have not been thoroughly investigated.</p>

**Toxicity Data: Sulfuric acid**

Species:	Dose:	Route of Application:	Result:	Remarks
Rat	2140 mg/kg	Oral	LD50	
Rat	510 mg/m3	Inhalation	LC50	
Mouse	320 mg/m3	Inhalation	LC50	
Guinea pig	18 mg/m3	Inhalation	LC50	Lungs, Thorax, or Respiration: Other changes.

**Irritation Data: Sulfuric acid**

Species:	Route of Application:	Dose:	Exposure Time:	Remarks
Rabbit	Eyes	0.25 mg	---	Severe irritation effect
Rabbit	Eyes	5 mg	30S	Rinsed

**Chronic Exposure – Carcinogen: Sulfuric acid**  
Result: The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong-inorganic-acid mists containing sulfuric acid is carcinogenic to humans (group 1).  
IARC CARCINOGEN LIST: Rating: Group 1  
NTP CARCINOGEN LIST: Rating: Known to be carcinogenic.  
ACGIH CARCINOGEN LIST: Rating: A2

**Chronic Exposure – Teratogen: Sulfuric acid**

Species:	Dose:	Route of Application:	Exposure Time:	Result:
Rabbit	20MG/M3/7H	Inhalation	6-18D PREG	Specific Developmental Abnormalities: Musculoskeletal system.

**Chronic Exposure – Mutagen: Sulfuric acid**

Species:	Dose:	Cell Type:	Mutation Test:
Hamster	4 mmol/L	Ovary	Cytogenetic analysis



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<b>Toxicity Data: Potassium phosphate</b>			
<b>Species:</b>	<b>Dose:</b>	<b>Route of Application:</b>	<b>Result:</b>
Rabbit	>4640 mg/kg	Skin	LD50

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**Section 12 – Ecological information**

No data available.

**Section 13 - Disposal Considerations**

Contact a licensed professional waste disposal service to dispose of this material.  
Observe all federal, state, and local environmental regulations.

**Section 14 - Transport Information**

<b>DOT</b> Proper Shipping Name: None Non-Hazardous for Transport: Non-hazardous for transport.	<b>IATA</b> Non-Hazardous for Air Transport: Non-hazardous for air transport.
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Note: Both the reagent and standard are at concentrations below that requiring hazardous listing.  
The reagent contains 4.2% Sulfuric Acid and <0.01% Ammonium molybdate in water.  
The standard contains 5 mg/dl of potassium phosphate.

**Section 15 - Regulatory Information**

<b>Sulfuric acid:</b> EU DIRECTIVES CLASSIFICATION Symbol of Danger: C Indication of Danger: Corrosive. R: 35 Risk Statements: Causes severe burns. S: 26 30 45 Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).	<b>Sulfuric acid:</b> US CLASSIFICATION AND LABEL TEXT Indication of Danger: Highly Toxic (USA) Toxic (EU). Risk Statements: Causes severe burns. Toxic by inhalation. Safety Statements: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing, gloves, and eye/face protection. Do not breathe vapor. US Statements: Target organ(s): Teeth. Cardiovascular system.
CANADA REGULATORY INFORMATION WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes, NDSL: No	UNITED STATES REGULATORY INFORMATION SARA LISTED: No TSCA INVENTORY ITEM: Yes

<b>Ammonium molybdate:</b> EU ADDITIONAL CLASSIFICATION S: 24/25 22 Safety Statements: Avoid contact with skin and eyes. Do not breathe dust.	<b>Ammonium molybdate:</b> US CLASSIFICATION AND LABEL TEXT US Statements: Caution: Avoid contact and inhalation.
CANADA REGULATORY INFORMATION WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes, NDSL: No	UNITED STATES REGULATORY INFORMATION SARA LISTED: No

<b>Potassium phosphate:</b> CANADA REGULATORY INFORMATION WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR. DSL: Yes, NDSL: No	<b>Potassium phosphate:</b> UNITED STATES REGULATORY INFORMATION SARA LISTED: No TSCA INVENTORY ITEM: Yes
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**Section 16 - Other Information**

This Product is labeled in accordance with CFR21 (Food and Drugs), Section 809.10.

The information contained herein has been compiled from data presented in various technical sources believed to be accurate. We make no warranties, express or implied, and assume no liability in connection with the use of this information. It is the user's



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responsibility to determine the suitability of this information and to assure the adoption of necessary safety precautions.

N/A - Not Applicable or Not Available