

**SAFETY DATA SHEET**

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 10/08/2018

Version 1.0

**SECTION 1. Identification****Product identifier**

Product number	219334
Product name	P-2K

**Relevant identified uses of the substance or mixture and uses advised against**

Identified uses	Reagent for research and development
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**Details of the supplier of the safety data sheet**

Company	EMD Millipore Corporation   400 Summit Drive   Burlington   Massachusetts 01803   United States of America   General Inquiries: +1 800-645-5476   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
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<b>Emergency telephone</b>	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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**SECTION 2. Hazards identification****GHS Classification**

Corrosive to Metals, Category 1, H290  
Skin irritation, Category 2, H315  
Eye irritation, Category 2A, H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS-Labeling***Hazard pictograms*

*Signal Word*  
Warning

*Hazard Statements*

H290 May be corrosive to metals.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.

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## *Precautionary Statements*

P234 Keep only in original container.

P264 Wash skin thoroughly after handling.

P280 Wear protective gloves/ eye protection/ face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see supplemental first aid instructions on this label).

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P390 Absorb spillage to prevent material damage.

P406 Store in corrosive resistant stainless steel container with a resistant inner liner.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Chemical nature Aqueous sulfuric acid solution of inorganic compounds.

### **Hazardous ingredients**

*Chemical name (Concentration)*

CAS-No.

*sulphuric acid (>= 10 % - < 30 % )*

7664-93-9

Exact percentages are being withheld as a trade secret.

*Ammonium heptamolybdate (>= 1 % - < 5 % )*

12027-67-7

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*Inhalation*

After inhalation: fresh air.

*Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

*Eye contact*

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

*Ingestion*

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

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

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The following applies to trivalent antimony compounds in general: after uptake and absorption as a result of misuse or improper handling, drop in blood pressure, hepatotoxic effect, in some circumstances myalgia, dyspnoea, dermatitis.

irritant effects

Circulatory collapse

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

No information available.

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## SECTION 5. Fire-fighting measures

### Extinguishing media

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Sulfur oxides

### Advice for firefighters

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Chemisorb® H<sup>+</sup>, Art. No. 101595).

Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

### Conditions for safe storage, including any incompatibilities

*Requirements for storage areas and containers*

No metal containers.

Tightly closed.

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### *Ingredients*

Basis	Value	Threshold limits	Remarks
<i> sulphuric acid 7664-93-9</i>			
ACGIH	Time Weighted Average (TWA):	0.2 mg/m <sup>3</sup>	Form of exposure: Thoracic fraction.
NIOSH/GUIDE	Recommended exposure limit (REL):	1 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	1 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	1 mg/m <sup>3</sup>	
<i> Ammonium heptamolybdate 12027-67-7</i>			
ACGIH	Time Weighted Average (TWA):	0.5 mg/m <sup>3</sup>	Form of exposure: Respirable fraction. Expressed as: as Mo
OSHA_TRANS	PEL:	5 mg/m <sup>3</sup>	Expressed as: as Mo
Z1A	Time Weighted Average (TWA):	5 mg/m <sup>3</sup>	Expressed as: as Mo

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### *Hygiene measures*

Change contaminated clothing and immerse in water. Preventive skin protection Wash hands and face after working with substance.

### *Eye/face protection*

Safety glasses

### *Hand protection*

full contact:

Glove material: natural latex  
Glove thickness: 0.6 mm

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Break through time: > 480 min  
splash contact:

Glove material: natural latex  
Glove thickness: 0.6 mm  
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 706 Lapren® (full contact), KCL 706 Lapren® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

*Other protective equipment:*  
protective clothing

### *Respiratory protection*

required when vapors/aerosols are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer. These measures have to be properly documented.

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## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	odorless
Odor Threshold	Not applicable
pH	< 1 at 68 °F (20 °C)
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable

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Upper explosion limit	Not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.
Density	1.12 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) soluble
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	Oxidizing properties
Corrosion	May be corrosive to metals.

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## SECTION 10. Stability and reactivity

### Reactivity

Oxidizing agents

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Violent reactions possible with:

Water, Alkali metals, alkali compounds, Ammonia, alkalines, Metals, Alkaline earth metals, alkaline earth compounds, metal alloys, acids

### Conditions to avoid

no information available

### Incompatible materials

animal/vegetable tissues

Metals

Gives off hydrogen by reaction with metals.

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Eye contact, Skin contact

#### *Target Organs*

Eyes

Skin

Respiratory system

teeth

Mucous membranes

#### *Skin irritation*

Mixture causes skin irritation.

#### *Eye irritation*

Mixture causes serious eye irritation.

#### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

#### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

#### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

### Carcinogenicity

IARC	Group 1: Carcinogenic to humans sulphuric acid 7664-93-9
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	Known carcinogen. sulphuric acid 7664-93-9
ACGIH	A2: Suspected human carcinogen sulphuric acid 7664-93-9 Confirmed animal carcinogen with unknown relevance to humans. Ammonium heptamolybdate 12027-67-7

### Further information

After inhalation of vapors: irritative symptoms in the respiratory tract. After skin contact: severe irritations. After eye contact: corneal destruction. After swallowing: damage of the oral, oesophageal, and gastric mucous membranes. Perforation of the oesophagus frequently occurs. Circulatory collapse may occur after 1-2 hours.

The following applies to trivalent antimony compounds in general: after uptake and absorption as a result of misuse or improper handling, drop in blood pressure, hepatotoxic effect, in some circumstances myalgia, dyspnoea, dermatitis.

Other dangerous properties can not be excluded.

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Handle in accordance with good industrial hygiene and safety practice.

## Ingredients

### *sulphuric acid*

*Germ cell mutagenicity*

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(HSDB)

### *Ammonium heptamolybdate*

*Acute oral toxicity*

LD50 Rat: > 2,000 mg/kg

OECD Test Guideline 401 The value is given in analogy to the following substances: molybdenum

*Acute inhalation toxicity*

LC50 Rat: > 1.93 mg/l; 4 h ; dust/mist The value is given in analogy to the following substances: (highest concentration to be prepared) Disodium molybdate

OECD Test Guideline 403

*Acute dermal toxicity*

LD50 Rat: > 2,000 mg/kg

OECD Test Guideline 402 The value is given in analogy to the following substances: Disodium molybdate

*Skin irritation*

Rabbit

Result: No skin irritation

OECD Test Guideline 404

The value is given in analogy to the following substances: Diammonium dimolybdate

*Eye irritation*

Rabbit

Result: No eye irritation

OECD Test Guideline 405

The value is given in analogy to the following substances: Diammonium dimolybdate

*Sensitization*

Maximization Test Guinea pig

Result: Does not cause skin sensitization.

Method: OECD Test Guideline 406

The value is given in analogy to the following substances: Disodium molybdate

*Germ cell mutagenicity*

*Genotoxicity in vitro*

In vitro mammalian cell gene mutation test

Human lymphocytes

Result: negative

Method: OECD Test Guideline 405

The value is given in analogy to the following substances: disodium molybdate dihydrate

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

The value is given in analogy to the following substances: disodium molybdate dihydrate

In vitro mammalian cell gene mutation test

MOUSE LYMPHOMA TEST

Result: negative

Method: OECD Test Guideline 476

The value is given in analogy to the following substances: disodium molybdate dihydrate



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**SECTION 12. Ecological information**

**Ecotoxicity**

No information available.

**Persistence and degradability**

No information available.

**Bioaccumulative potential**

No information available.

**Mobility in soil**

No information available.

*Additional ecological information*

Harmful effect due to pH shift. Neutralization possible in waste water treatment plants.  
Discharge into the environment must be avoided.

**Ingredients**

*sulphuric acid*

*Toxicity to fish*

static test LC50 *Lepomis macrochirus* (Bluegill sunfish): > 16 - < 28 mg/l; 96 h  
Analytical monitoring: yes(ECHA)

*Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): > 100 mg/l; 48 h  
Analytical monitoring: yes  
OECD Test Guideline 202

*Toxicity to algae*

static test EC50 *Desmodesmus subspicatus* (green algae): > 100 mg/l; 72 h  
Analytical monitoring: yes  
OECD Test Guideline 201

*Toxicity to fish (Chronic toxicity)*

flow-through test NOEC *Cyprinodon* sp. (minnow): 0.025 mg/l; 65 d  
Analytical monitoring: yes(ECHA)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

*Ammonium heptamolybdate*

*Toxicity to fish*

semi-static test LC50 *Oncorhynchus mykiss* (rainbow trout): 420 mg/l; 96 h  
OECD Test Guideline 203 The value is given in analogy to the following substances: Diammonium dimolybdate

*Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): 79 mg/l; 48 h  
OECD Test Guideline 202 The value is given in analogy to the following substances: Diammonium dimolybdate

*Toxicity to bacteria*

static test EC50 activated sludge: 820 mg/l; 3 h  
OECD Test Guideline 209 molybdenum(VI) oxide

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## *Biodegradability*

The methods for determining the biological degradability are not applicable to inorganic substances.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number UN 2796  
Proper shipping name SULPHURIC ACID SOLUTION  
Class 8  
Packing group II  
Environmentally hazardous --

### Air transport (IATA)

UN number UN 2796  
Proper shipping name SULPHURIC ACID SOLUTION  
Class 8  
Packing group II  
Environmentally hazardous --  
Special precautions for user no

### Sea transport (IMDG)

UN number UN 2796  
Proper shipping name SULPHURIC ACID SOLUTION  
Class 8  
Packing group II  
Environmentally hazardous --  
Special precautions for user yes  
EmS F-A S-B

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## SECTION 15. Regulatory information

### United States of America

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

#### *Ingredients*

sulphuric acid	7664-93-9	14.973 %
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**SARA 302**

The following components are subject to reporting levels established by SARA Title III, Section 302:

*Ingredients*

sulphuric acid 7664-93-9

**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

*Ingredients*

sulphuric acid

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

*Ingredients*

sulphuric acid

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**DEA List I**

Not listed

**DEA List II**

Listed

*Ingredients*

sulphuric acid 7664-93-9

**US State Regulations**

**Massachusetts Right To Know**

*Ingredients*

sulphuric acid

**Pennsylvania Right To Know**

*Ingredients*

sulphuric acid

**New Jersey Right To Know**

*Ingredients*

sulphuric acid

**California Prop 65 Components**

WARNING: this product contains a chemical known in the State of California to cause cancer.

*Ingredients*

sulphuric acid

**Notification status**

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

**Labeling**

*Hazard pictograms*



*Signal Word*

Warning

*Hazard Statements*

H290 May be corrosive to metals.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

*Precautionary Statements*

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

**Full text of H-Statements referred to under sections 2 and 3.**

H290 May be corrosive to metals.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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