

# • SAFETY DATA SHEET

Version 8.11  
Revision Date 02/04/2026  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Tungstophosphoric acid hydrate for analysis  
EMSURE®

Product Number : 1.00583  
Catalogue No. : 100583  
Brand : Millipore  
CAS-No. : 12501-23-4

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Reagent for analysis  
Uses advised against :

The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

### 1.4 Emergency telephone number

Emergency Phone # : 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 in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

**Hazards for the product as supplied**

Acute toxicity (Oral) : Category 4  
Skin corrosion : Sub-category 1C  
Serious eye damage : Category 1  
Short-term (acute) aquatic hazard : Category 2  
Long-term (chronic) aquatic hazard : Category 2

### Other hazards

None known.

### GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H411 Toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**  
P260 Do not breathe dust.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
**Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
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 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
P305 + P351 + P338 + P310 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/ doctor. P363 Wash contaminated clothing before reuse. P391 Collect spillage.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

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**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance  
CAS-No. : 12501-23-4

**Components**

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)), hydrate	12501-23-4*	>= 80 - <= 100	TSC

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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**SECTION 4. FIRST AID MEASURES**

General advice : First aiders need to protect themselves. Show this safety data sheet to the doctor in attendance.

If inhaled : After inhalation: fresh air. Call in physician.

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

In case of eye contact : After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed : After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

- Most important symptoms and effects, both acute and delayed : The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
- Protection of first-aiders : For personal protection see section 8.
- Notes to physician : No data available

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## SECTION 5. FIREFIGHTING MEASURES

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.

Specific hazards during fire fighting : Not combustible.

Fire may cause evolution of:

Oxides of phosphorus

Ambient fire may liberate hazardous vapours.

Hazardous combustion products : Oxides of phosphorus

Tungsten oxide

Specific extinguishing methods : No data available

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

Special protective equipment for fire- : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe

fighters

distance or by wearing suitable protective clothing.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Advice for non-emergency personnel:  
Avoid inhalation of dusts.  
Avoid substance contact.  
Ensure adequate ventilation.  
Evacuate the danger area, observe emergency procedures, consult an expert.  
Advice for emergency responders:  
For personal protection 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

- Further information on storage conditions : Tightly closed.  
Dry.
- Storage class : 8B, Non-combustible, corrosive hazardous materials
- Recommended storage temperature : Recommended storage temperature see product label.
- Further information on storage stability : Recommended storage temperature see product label.

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)),	12501-23-4	TWA (Respirable particulate)	3 mg/m <sup>3</sup> (Tungsten)	ACGIH

hydrate		matter)		
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**Engineering measures** : No data available

**Personal protective equipment**

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type P2

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

**Hand protection**

Material : Nitrile rubber  
 Break through time : 480 min  
 Glove thickness : 0.11 mm  
 Protective index : Full contact  
 Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber  
 Break through time : 480 min  
 Glove thickness : 0.11 mm  
 Protective index : Splash contact  
 Manufacturer : KCL 741 Dermatril® L

Remarks : This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
 Tightly fitting safety goggles

Skin and body protection : Acid-resistant protective clothing

Hygiene measures : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : crystalline

Color : light green

Odor : No data available

Odor Threshold : No data available  
pH : 2 (68 °F / 20 °C)  
GLP: yes

Melting point/ range : 203 °F / 95 °C

Boiling point/boiling range : 226.2 °F / 107.9 °C (ca. 1,013.25 hPa)  
GLP: yes  
(ECHA)

Flash point : Not applicable

Evaporation rate : No data available

Flammability (solid, gas) : The product is not flammable.

Flammability (liquids) : No data available

Burning rate : No data available

Upper explosion limit /  
Upper flammability limit : No data available

Lower explosion limit /  
Lower flammability limit : No data available

Vapor pressure : 25.62 hPa (77 °F / 25 °C)  
Method: OECD Test Guideline 104  
GLP: yes

Relative vapour density : No data available

Relative density : 3.88 (68 °F / 20 °C)  
Method: OECD Test Guideline 109  
GLP: yes

Density	: 3.88 g/cm <sup>3</sup> (68 °F / 20 °C) Method: OECD Test Guideline 109 GLP: yes
Bulk density	: ca. 960 kg/m <sup>3</sup>
Water solubility	: No data available
Partition coefficient: n-octanol/water	: Not applicable for inorganic substances
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: Not classified as explosive.
Oxidizing properties	: GLP: yes none
Molecular weight	: 2,880.05 g/mol
Particle characteristics Particle size	: No data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No data available
Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: Exothermic reaction with: Strong bases
Conditions to avoid	: no information available
Incompatible materials	: No data available
Hazardous decomposition products	: In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - female - > 300 - 2,000 mg/kg  
(OECD Test Guideline 423)

Inhalation: No data available

Symptoms: Cough, Shortness of breath, mucosal irritations, Possible damages:, damage of respiratory tract

Dermal: No data available

#### Skin corrosion/irritation

Skin - In vitro study

Result: Corrosive after 1 to 4 hours of exposure - 4 h  
(OECD Test Guideline 435)

#### Serious eye damage/eye irritation

Remarks: Causes serious eye damage.

#### Respiratory or skin sensitization

In animal experiments:

Result: negative

(OECD Test Guideline 429)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component 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 component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### Reproductive toxicity

No data available

#### Specific target organ toxicity - single exposure

No data available

#### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

### 11.2 Additional Information

Cough, Shortness of breath, Headache, Nausea, Vomiting

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

#### **Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)), hydrate:**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 70.8 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 202  
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 7.8 mg/l  
Exposure time: 72 h  
Test Type: static test  
Analytical monitoring: yes  
Method: OECD Test Guideline 201  
GLP: yes

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l  
Exposure time: 3 h  
Test Type: static test  
Method: OECD Test Guideline 209  
GLP: yes

### Persistence and degradability

#### Components:

#### **Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)), hydrate:**

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

### Bioaccumulative potential

#### Components:

#### **Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)), hydrate:**

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

### **Mobility in soil**

No data available

### **Other adverse effects**

#### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances  
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

#### **Components:**

#### **Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)), hydrate:**

Additional ecological information : Harmful effect due to pH shift.

Discharge into the environment must be avoided.

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

### **Disposal methods**

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## **SECTION 14. TRANSPORT INFORMATION**

### **International Regulations**

#### **IATA-DGR**

UN/ID No. : UN 3260  
Proper shipping name : Corrosive solid, acidic, inorganic, n.o.s. (Tungsten hydroxide oxide phosphate (W12(OH)3O33(PO4)), hydrate)  
Class : 8  
Packing group : III  
Labels : Class 8 - Corrosive substances  
Packing instruction (cargo aircraft) : 864  
Packing instruction (passenger aircraft) : 860

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**IMDG-Code**

UN number : UN 3260  
Proper shipping name : CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.  
(Tungsten hydroxide oxide phosphate  
(W12(OH)3O33(PO4)), hydrate)  
Class : 8  
Packing group : III  
Labels : 8  
EmS Code : F-A, S-B  
Marine pollutant : yes

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**National Regulations****49 CFR Road**

UN/ID/NA number : UN 3260  
Proper shipping name : Corrosive solid, acidic, inorganic, n.o.s.  
(Tungsten hydroxide oxide phosphate  
(W12(OH)3O33(PO4)), hydrate)  
Class : 8  
Packing group : III  
Labels : Class 8 - Corrosive substances  
ERG Code : 154  
Marine pollutant : no

Poison Inhalation Hazard : No

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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**SECTION 15. REGULATORY INFORMATION****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

This material does not contain any components with a section 302 EHS TPQ.

**SARA 313**

: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### **Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCOMI Intermediate or Final VOC's (40 CFR 60.489).

### **Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

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

This product does not contain any priority pollutants related to the U.S. Clean Water Act

### **US State Regulations**

#### **Massachusetts Right To Know**

No components are subject to the Massachusetts Right to Know Act.

#### **Maine Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

#### **Washington Chemicals of High Concern**

Product does not contain any listed chemicals

#### **The components of this product are reported in the following inventories:**

US TSCA : Product contains substance(s) not listed on TSCA inventory.

#### **TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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## **SECTION 16. OTHER INFORMATION**

### **Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN -

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The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

The logo for MilliporeSigma, featuring the word "MILLIPORE" in a bold, green, sans-serif font above the word "SIGMA" in a similar font, with the "S" in "SIGMA" being significantly larger and more prominent.

Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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