

## SAFETY DATA SHEET

Version 8.11  
Revision Date 04/30/2025  
Print Date 05/01/2025

## SECTION 1. IDENTIFICATION

## 1.1 Product identifiers

Product name : Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS, Reag. Ph Eur

Product Number : 1.05941  
Catalogue No. : 105941  
Brand : Millipore  
Index-No. : 025-003-00-4  
CAS-No. : 10034-96-5

## 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

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

## SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**

Millipore - 1.05941

Page 1 of 14

Serious eye damage : Category 1

Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Brain)

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 2

#### Other hazards

None known.

#### GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H318 Causes serious eye damage.  
H373 May cause damage to organs (Brain) through prolonged or repeated exposure if inhaled.  
H402 Harmful to aquatic life.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
P260 Do not breathe dust.  
P273 Avoid release to the environment.  
P280 Wear eye protection/ face protection.

**Response:**  
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.  
P314 Get medical advice/ attention if you feel unwell.  
P391 Collect spillage.

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

---

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

## Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Manganese Sulfate Monohydrate	10034-96-5*	$\geq 90 - \leq 100$	-

\* Indicates that the identifier is a CAS No.

Actual concentration is withheld as a trade secret

---

## SECTION 4. FIRST AID MEASURES

General advice	: Show this material 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. Consult a physician.
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: immediately make victim drink water (two glasses at most). Consult a physician.
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

---

## SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Specific hazards during fire fighting	: Not combustible.

Fire may cause evolution of:

Sulfur oxides

Ambient fire may liberate hazardous vapours.

Hazardous combustion products	: Sulfur oxides  Manganese/manganese oxides
Specific extinguishing methods	: No data available
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.
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.

---

## 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.

---

## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

Advice on safe handling : Work under hood. Do not inhale substance/mixture.

Further information on storage conditions : Tightly closed.  
Dry.

Storage class : 13, Non Combustible Solids

Recommended storage temperature : Recommended storage temperature see product label.

Further information on storage stability : Recommended storage temperature see product label.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Manganese Sulfate Monohydrate	10034-96-5	C	5 mg/m <sup>3</sup> (Manganese)	OSHA Z-1
		TWA (Inhalable particulate matter)	0.1 mg/m <sup>3</sup> (Manganese)	ACGIH
		TWA (Respirable particulate matter)	0.02 mg/m <sup>3</sup> (Manganese)	ACGIH
		TWA	1 mg/m <sup>3</sup> (Manganese)	NIOSH REL
		ST	3 mg/m <sup>3</sup> (Manganese)	NIOSH REL

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges.  
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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: <a href="http://www.kcl.de">www.kcl.de</a> ).
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	: protective clothing
Hygiene measures	: Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

---

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: crystalline
Color	: pink
Odor	: odorless
Odor Threshold	: Not applicable
pH	: 3.0 - 3.5 (68 °F / 20 °C) Concentration: 50 g/l
Melting point	: > 840 °F / > 449 °C Method: OECD Test Guideline 102
	: Not applicable

Flash point	: No data available
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	: Not applicable
Lower explosion limit / Lower flammability limit	: Not applicable
Vapor pressure	: No data available
Relative vapor density	: No data available
Relative density	: No data available
Density	: 2.95 g/cm <sup>3</sup> (68 °F / 20 °C)
Bulk density	: 300 - 1,200 kg/m <sup>3</sup>
Solubility(ies) Water solubility	: 762 g/l (68 °F / 20 °C)
Partition coefficient: n- octanol/water	: Not applicable for inorganic substances
Autoignition temperature	: Not applicable
Decomposition temperature	: 752 - 842 °F / 400 - 450 °C Elimination of water of crystallization  1562 °F / 850 °C (anhydrous substance)
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: No data available
Oxidizing properties	: none
Molecular weight	: 169.02 g/mol

Particle characteristics  
Particle size : No data available

---

## 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 : Violent reactions possible with: acids

Conditions to avoid : Avoid moisture.  
no information available

Incompatible materials : No data available

Hazardous decomposition products : In the event of fire: see section 5

---

## SECTION 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male and female - 2,150 mg/kg

Remarks: (anhydrous substance)

(ECHA)

Symptoms: After uptake of large quantities:, Nausea, Vomiting, Diarrhea, gastric pain, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

LC50 Inhalation - Rat - male and female - 4 h - > 4.45 mg/l - dust/mist

(OECD Test Guideline 403)

Remarks: (anhydrous substance)

Symptoms: Possible damages:, mucosal irritations, tissue damage, Pneumonia

Dermal: No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Remarks: (anhydrous substance)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye

(OECD Test Guideline 405)

Remarks: (anhydrous substance)



**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Result: negative

Remarks: (National Toxicology Program)

**Carcinogenicity**

IARC: No ingredient 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 ingredient 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**

Inhalation - May cause damage to organs through prolonged or repeated exposure.

- Brain

**Aspiration hazard**

No data available

**11.2 Additional Information**

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds., Prolonged or repeated inhalation may cause:, Pneumonia

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

Manganese compounds are generally only very slightly absorbable via the gastrointestinal tract.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

---

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### **Manganese Sulfate Monohydrate:**

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 1 mg/l

Exposure time: 72 h

Test Type: static test

Analytical monitoring: yes

Method: OECD Test Guideline 201

GLP: yes

ErC50 (Desmodesmus subspicatus (green algae)): 61 mg/l

Exposure time: 72 h

Test Type: static test

Analytical monitoring: yes

Method: OECD Test Guideline 201

GLP: yes

Toxicity to microorganisms : NOEC (activated sludge): 560 mg/l

Exposure time: 3 h

Test Type: static test

Method: OECD Test Guideline 209

GLP: yes

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:

##### **Manganese Sulfate Monohydrate:**

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

### Bioaccumulative potential

#### Components:

##### **Manganese Sulfate Monohydrate:**

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

**Mobility in soil**

No data available

**Other adverse effects****Components:****Manganese Sulfate Monohydrate:**

Additional ecological information : Discharge into the environment must be avoided.

---

**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.

---

**SECTION 14. TRANSPORT INFORMATION****International Regulations****IATA-DGR**

UN/ID No. : UN 3077  
Proper shipping name : Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate)  
Class : 9  
Packing group : III  
Labels : Class 9 - Miscellaneous dangerous substances and articles  
Packing instruction (cargo aircraft) : 956  
Packing instruction (passenger aircraft) : 956

**IMDG-Code**

UN number : UN 3077  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate)  
Class : 9  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F  
Marine pollutant : yes

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**National regulation**

## 49 CFR Road

Not regulated as a dangerous good

Poison Inhalation Hazard : No

### Special precautions for user

Remarks : EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

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.

---

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

Manganese Sulfate Monohydrate	10034-96-5	>= 90 - <= 100 %
-------------------------------	------------	------------------

### US State Regulations

#### Massachusetts Right To Know

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

#### Pennsylvania Right To Know

Manganese Sulfate Monohydrate	10034-96-5
-------------------------------	------------

#### 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 ingredients of this product are reported in the following inventories:

TSCA : All substances listed as active on the 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.

---

## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	: USA. NIOSH Recommended Exposure Limits
OSHA Z-1	: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	: 8-hour, time-weighted average
NIOSH REL / TWA	: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST	: STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / C	: Ceiling

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 - 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 Harmonized 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 Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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 - Organization 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

Millipore - 1.05941

Page 13 of 14

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.

Copyright 2020 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

Revision Date : 04/30/2025

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact [mlsbranding@sial.com](mailto:mlsbranding@sial.com).

US / EN