

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Revision Date 06/14/2018

Version 1.5

SECTION 1. Identification**Product identifier**

Product number	105941
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS, Reag. Ph Eur
CAS-No.	10034-96-5

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

Identified uses	Reagent for analysis
-----------------	----------------------

Details of the supplier of the safety data sheet

Company	Millipore (Canada) Ltd 109 Woodbine Downs Blvd. Unit 5 Etobicoke Ontario M9W 6Y1 Canada 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.
---------	---

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

SECTION 2. Hazards identification**GHS Classification**

Serious eye damage, Category 1, H318
Specific target organ systemic toxicity - repeated exposure, Category 2, Inhalation, Brain, H373
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling*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.

Precautionary Statements

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number	105941	Version 1.5
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS,Reag. Ph Eur	

P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P280 Wear protective gloves/ eye protection/ face protection.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	MnSO ₄ * H ₂ O	MnO ₄ S * H ₂ O (Hill)
Molar mass	169.02 g/mol	

Hazardous ingredients

Chemical name (Concentration)

CAS-No.

Manganese sulphate monohydrate (>= 90 % - <= 100 %)

10034-96-5

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Call in physician.

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. Immediately 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

gastric pain, Diarrhea, Nausea, Vomiting

Irritation and corrosion

Risk of serious damage to eyes.

Indication of any immediate medical attention and special treatment needed

No information available.

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number

105941

Version 1.5

Product name

Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE®

ACS, Reag. Ph Eur

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

In the event of fire, wear self-contained breathing apparatus.

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.

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:

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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry.

Store at +15°C to +25°C (+59°F to +77°F).

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number

105941

Version 1.5

Product name

Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE®

ACS,Reag. Ph Eur

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>Manganese sulphate monohydrate 10034-96-5</i>			
CAD AB OEL	Time Weighted Average (TWA):	0.2 mg/m ³	Expressed as: as Mn
CAD BC OEL	Time Weighted Average (TWA):	0.2 mg/m ³	Expressed as: as Mn
CAD MB OEL	Time Weighted Average (TWA):	0.2 mg/m ³	Expressed as: as Mn
CAD ON OEL	Time Weighted Average (TWAEV):	0.2 mg/m ³	Expressed as: as Mn
CAD SK OEL	8 hour average	0.2 mg/m ³	Expressed as: as Mn
	contamination limit:		
	15 minute average	0.6 mg/m ³	Expressed as: as Mn
OEL (QUE)	Time Weighted Average (TWA):	5 mg/m ³	Form of exposure: Dust. Expressed as: as Mn

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. Preventive skin protection recommended. Wash hands after working with substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material: Nitrile rubber
Glove thickness: 0.11 mm
Break through time: > 480 min

splash contact:

Glove material: Nitrile rubber
Glove thickness: 0.11 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 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

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

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number	105941	Version 1.5
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS,Reag. Ph Eur	

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).

Other protective equipment:
protective clothing

Respiratory protection

required when dusts 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.

SECTION 9. Physical and chemical properties

Physical state	solid
Color	pink
Odor	odorless
Odor Threshold	Not applicable
pH	3.0 - 3.5 at 50 g/l 68 °F (20 °C)
Melting point	> 840 °F (> 449 °C) Method: OECD Test Guideline 102
Boiling point/boiling range	Not applicable
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number	105941	Version 1.5
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS,Reag. Ph Eur	

Density	2.95 g/cm ³ at 68 °F (20 °C)
Relative density	No information available.
Water solubility	762 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	Not applicable for inorganic substances
Autoignition temperature	No information available.
Decomposition temperature	752 - 842 °F (400 - 450 °C) Elimination of water of crystallization 1562 °F (850 °C) (anhydrous substance)
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	Not applicable
Bulk density	300 - 1,200 kg/m ³

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

releases water of crystallization when heated.

Possibility of hazardous reactions

Violent reactions possible with:
acids

Conditions to avoid

no information available

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number

105941

Version 1.5

Product name

Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE®

ACS,Reag. Ph Eur

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Acute oral toxicity

LD50 Rat: 2,150 mg/kg (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.

Acute inhalation toxicity

LC50 Rat: > 4.45 mg/l; 4 h ; dust/mist

OECD Test Guideline 403

(anhydrous substance)

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

Skin irritation

Rabbit

Result: No skin irritation

OECD Test Guideline 404

(anhydrous substance)

Eye irritation

Rabbit

Result: Irreversible effects on the eye

OECD Test Guideline 405

(anhydrous substance)

Causes serious eye damage.

Genotoxicity in vitro

Ames test

Result: negative

(National Toxicology Program)

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

May cause damage to organs through prolonged or repeated exposure if inhaled.

Routes of exposure: Inhalation

Target Organs: Brain

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

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.

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number	105941	Version 1.5
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS,Reag. Ph Eur	

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	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.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

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.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to algae

static test NOEC *Desmodesmus subspicatus* (green algae): 1 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

static test ErC50 *Desmodesmus subspicatus* (green algae): 61 mg/l; 72 h

Analytical monitoring: yes

OECD Test Guideline 201

Toxicity to bacteria

static test NOEC activated sludge: 560 mg/l; 3 h

OECD Test Guideline 209

static test EC50 activated sludge: > 1,000 mg/l; 3 h

OECD Test Guideline 209

Persistence and degradability

Biodegradability

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

Bioaccumulative potential

Partition coefficient: n-octanol/water

Not applicable for inorganic substances

Mobility in soil

No information available.

Additional ecological information

Discharge into the environment must be avoided.

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number	105941	Version 1.5
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS,Reag. Ph Eur	

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.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE(II)-SULPHATE)
Class	9
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE(II)-SULPHATE)
Class	9
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE(II)-SULPHATE)
Class	9
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-F

SECTION 15. Regulatory information

United States of America

Canada

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

SAFETY DATA SHEET

according to the Global Harmonized System (and with all of the information required by the HPR)

Product number	105941	Version 1.5
Product name	Manganese(II) sulfate monohydrate spray-dried for analysis EMSURE® ACS,Reag. Ph Eur	

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

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Labeling

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.

H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention

P273 Avoid release to the environment.

P280 Wear eye protection.

Response

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

P314 Get medical advice/ attention if you feel unwell.

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.

Revision Date 06/14/2018

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.

All rights reserved. Millipore and the "M" Mark are registered trademarks of Merck KGaA, Darmstadt, Germany.
