

Manganese Chloride Tetrahydrate

Version number: 1.0

SECTION 1: Identification

1.1 Product identifier

Identification of the substance manganese(II) chloride tetrahydrate

Trade name Manganese Chloride Tetrahydrate

CAS number 13446-34-9

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

Relevant identified uses Chemicals for various applications

1.3 Details of the supplier of the safety data sheet

Valudor Products, LLC
179 Calle Magdalena Suite 100
Encinitas, California CA 92024
United States

Telephone: +1 (760) 635 8500
e-mail: info@valudor.com
Website: www.valudor.com

1.4 Emergency telephone number

Emergency information 800-535-5053 (Infotrac)

As above or nearest toxicological information centre.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Classification				
Section	Hazard class	Category	Hazard class and category	Hazard statement
A.10	acute toxicity (oral)	4	Acute Tox. 4	H302
A.3	serious eye damage/eye irritation	1	Eye Dam. 1	H318
A.9	specific target organ toxicity - repeated exposure	2	STOT RE 2	H373

For full text of abbreviations: see SECTION 16

The most important adverse physicochemical, human health and environmental effects

Delayed or immediate effects can be expected after short or long-term exposure.

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2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Signal word danger

Pictograms

GHS05, GHS07,
GHS08



Hazard statements

H302 Harmful if swallowed.

H318 Causes serious eye damage.

H373 May cause damage to organs (brain) through prolonged or repeated exposure.

Precautionary statements

P260 Do not breathe dust.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/protective clothing/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.

P330 Rinse mouth.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance manganese(II) chloride tetrahydrate

Identifiers

CAS No 13446-34-9

Molecular formula Cl₂Mn

Molar mass 197.9 g/mol

Purity >= 99 %

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SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Take off immediately all contaminated clothing.

In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.

Following skin contact

After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.

Wash contaminated clothing before reuse.

Following eye contact

Rinse immediately carefully and thoroughly with eye shower or water.

Remove contact lenses, if present and easy to do. Continue rinsing.

Get immediate medical advice/attention.

Following ingestion

Rinse mouth immediately and drink plenty of water.

Do NOT induce vomiting.

Get immediate medical advice/attention.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

This information is not available.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

water, foam, alcohol resistant foam, fire extinguishing powder

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

Hazardous decomposition products: Section 10.

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5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes.
Coordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

chemical protection suit, Self-contained breathing apparatus (SCBA)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.
Ventilate affected area.
Control of dust.
Do not breathe dust.
Do not get in eyes, on skin, or on clothing.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water.
Retain contaminated washing water and dispose of it.
If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Take up mechanically.

Advice on how to clean up a spill

Take up mechanically.
Collect spillage.

Other information relating to spills and releases

Place in appropriate containers for disposal.
Ventilate affected area.

6.4 Reference to other sections

Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Specific notes/details

None.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.

Remove contaminated clothing and protective equipment before entering eating areas.

Do not breathe dust.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Preventive skin protection (barrier creams/ointments) is recommended.

7.2 Conditions for safe storage, including any incompatibilities

Flammability hazards

None.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Protect against external exposure, such as

heat, humidity

Consideration of other advice

Keep away from food, drink and animal feedingstuffs.

Store in a dry place. Store in a closed container.

Handle and store contents under inert gas. Protect from moisture.

Store in a well-ventilated place. Keep cool.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Storage temperature recommended storage temperature: <25 °C

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

No information available.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)									
Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Notation	Source
US	manganese compounds	-	PEL (CA)	-	0.2	-	-	Mn	Cal/OSHA PEL
US	manganese compounds	-	REL	-	1 (10 h)	-	3	Mn	NIOSH REL
US	manganese compounds	-	PEL	-	-	-	-	Mn	29 CFR 1910.1000

Notation

Mn calculated as Mn (manganese)

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Hand protection

Protective gloves		
Material	Material thickness	Breakthrough times of the glove material
NR: natural rubber, latex	≥ 0,6 mm	these information are not available

Wear suitable gloves.

Chemical protection gloves are suitable, which are tested according to EN 374.

Check leak-tightness/impermeability prior to use.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Body protection

Protective clothing for use against solid particulates.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

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Environmental exposure controls

Use appropriate container to avoid environmental contamination.
Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state solid
(powder, crystalline)

Color light pink

Odor odorless

Other safety parameters

pH (value) 4 – 6 (in aqueous solution: 50 g/l, 20 °C)

Melting point/freezing point not determined

Boiling point or initial boiling point and boiling range not determined

Flash point not applicable

Evaporation rate not determined

Flammability (solid, gas) non-combustible

Explosive limits

Explosion limits of dust clouds not determined

Vapor pressure not determined

Density 2.01 g/cm³

Relative vapour density not applicable

Solubility(ies)

Water solubility 833 g/l at 20 °C

Partition coefficient

n-octanol/water (log KOW) not relevant
(inorganic)

Auto-ignition temperature not determined

Decomposition temperature not relevant

Viscosity not relevant
(solid)

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Explosive properties	none
Oxidizing properties	none
Information for relevant hazard classes according to GHS	hazard classes acc. to GHS (physical hazards): not relevant

9.2 Other information there is no additional information

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Protect from moisture.

10.5 Incompatible materials

acids, alkali metal, peroxides, e.g. hydrogen peroxide, zinc

10.6 Hazardous decomposition products

Hydrogen chloride (HCl).

Metallic oxides containing heavy metals.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgment (weight of evidence determination).

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity

Harmful if swallowed.

Exposure route	Endpoint	Value	Species	Method	Notes
oral	LD50	1,484 mg/kg	rat	-	-

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

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Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Skin sensitization

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Respiratory sensitization

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

IARC Monographs

not listed

National Toxicology Program (United States)

not listed

OSHA Carcinogens

Not listed.

Reproductive toxicity

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - single exposure

Classification could not be established because:

Data are lacking, inconclusive, or conclusive but not sufficient for classification.

Specific target organ toxicity - repeated exposure

May cause damage to organs (brain) through prolonged or repeated exposure.

Exposure route	Endpoint	Value	Exposure time	Species	Method	Notes
oral	NOAEL	553 mg/kg bw/day	90 d	rat, male		Mn
inhalation: dust/mist	NOEC	0.3 mg/l		monkey		Mn

Hazard category	Target organ	Exposure route
2	brain	if exposed

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Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

11.2 Other information

There is no additional information.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

Based on available data, the classification criteria are not met.

Endpoint	Exposure time	Value	Species	Method	Notes
ErC50	48 h	61 mg/l	algae (Desmod-esmus subspicatus)	OECD Guideline 201	read-across MnSO4 2H2O

Aquatic toxicity (chronic)

Based on available data, the classification criteria are not met.

Endpoint	Exposure time	Value	Species	Method	Notes
EC10	7 d	41.5 mg/l	lesser duckweed (lemna minor)	-	-
NOEC	72 h	1 mg/l	algae (Desmod-esmus subspicatus)	OECD Guideline 201	read-across MnSO4 2H2O
NOEC	20 d	20 µg/l	Crassostrea gigas	-	Mn2+
LOEC	72 h	3.2 mg/l	algae (Desmod-esmus subspicatus)	OECD Guideline 201	read-across MnSO4 2H2O

12.2 Persistence and degradability

Biodegradation

The study does not need to be conducted because the substance is inorganic.

Persistence

The study does not need to be conducted because the substance is inorganic.

12.3 Bioaccumulative potential

No data available.

n-octanol/water (log KOW)

not relevant
(inorganic)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

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12.6 Other adverse effects

Not listed.
This information is not available.

Remarks

None.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packages

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1 UN number not assigned

14.2 UN proper shipping name -

14.3 Transport hazard class(es) -

14.4 Packing group -

14.5 Environmental hazards -

14.6 Special precautions for user -

14.7 Transport in bulk according to IMO instruments -

14.8 Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT) Additional information

Not subject to transport regulations.

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SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

Not listed

Specific Toxic Chemical Listings (EPCRA Section 313)

Not listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Not listed

Clean Air Act

Not listed

Right to Know Hazardous Substance List

Cleaning Product Right to Know Act Substance List (CA-RTK)

Not listed

Toxic or Hazardous Substance List (MA-TURA)

Not listed

Hazardous Substances List (MN-ERTK)

Name of substance	CAS No	References	Remarks
manganese(II) chloride tetrahydrate	-	A, O	-

Legend

- A American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices for 1992-93", available from ACGIH
- O Occupational Safety and Health Administration (OSHA), Safety and Health Standards, Code of Federal Regulations, title 29, part 1910, subpart Z, "Toxic and Hazardous Substances, 1990." General information: Minnesota Department of Labor and Industry, Occupational Safety and Health Division

Hazardous Substance List (NJ-RTK)

Not listed

Hazardous Substance List (Chapter 323) (PA-RTK)

Not listed

Hazardous Substance List (RI-RTK)

Not listed

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California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

Not listed

Drug precursors, Chemicals designated within the Controlled Substances Act, 21 U.S.C. § 802, paragraphs 34 (list I) and 35 (list II)

Not listed

VOC content

Regulated Volatile Organic Compounds (VOC-EPA) 0 %

Regulated Volatile Organic Compounds (VOC-Cal ARB) 0 %

Industry or sector specific available guidance(s)

NPCA-HMIS® III

Hazardous Materials Identification System.
American Coatings Association.

Category	Rating	Description
Chronic	*	chronic (long-term) health effects may result from repeated overexposure
Health	3	major injury likely unless prompt action is taken and medical treatment is given
Flammability	0	material that will not burn under typical fire conditions
Physical hazard	1	material that is normally stable but can become unstable (self-react) at high temperatures and pressures. Material may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors
Personal protection	-	-

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).

Category	Degree of hazard	Description
Flammability	0	material that will not burn under typical fire conditions
Health	3	material that, under emergency conditions, can cause serious or permanent injury
Instability	0	material that is normally stable, even under fire conditions
Special hazard	-	-

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

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SECTION 16: Other information, including date of preparation or last revision

Date of preparation: 2023-01-03

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
29 CFR 1910.1000	29 CFR 1910.1000, Tables Z-1, Z-2, Z-3 - Occupational Safety and Health Standards: Toxic and Hazardous Substances (permissible exposure limits)
49 CFR US DOT	49 CFR U.S. Department of Transportation
Cal/OSHA PEL	California Division of Occupational Safety and Health (Cal/OSHA): Permissible Exposure Limits (PELs)
Cal ARB	California Air Resources Board
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
EPA	Environmental Protection Agency. An agency of the federal government of the United States charged with protecting human health and the environment
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IARC Monographs	IARC Monographs on the Evaluation of Carcinogenic Risks to Humans
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
IMDG	International Maritime Dangerous Goods Code
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
LOEC	Lowest Observed Effect Concentration
NIOSH REL	National Institute for Occupational Safety and Health (NIOSH): Recommended Exposure Limits (RELs)
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible exposure limit
ppm	Parts per million

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Abbr.	Descriptions of used abbreviations
STEL	Short-term exposure limit
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT).

International Maritime Dangerous Goods Code (IMDG).

Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H302	Harmful if swallowed.
H318	Causes serious eye damage.
H373	May cause damage to organs (brain) through prolonged or repeated exposure.

Responsible for the safety data sheet

Chemical Regulatory Compliance Company Telephone: +1 (630) 410-1660
Jasper, GA e-Mail: GHS@crc-us.com
USA Website: www.crc-us.com

Disclaimer

This information is based upon the present state of our knowledge.

This SDS has been compiled and is solely intended for this product.