

# Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU



## Manganese(II) chloride tetrahydrate ≥99 %, p.a.

article number: **T881**  
Version: **3.0 en**  
Replaces version of: 2017-01-30  
Version: (2)

date of compilation: 2016-10-26  
Revision: 2019-09-09

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Identification of the substance	<b>Manganese(II) chloride tetrahydrate</b>
Article number	T881
Registration number (REACH)	01-2119934899-15-xxxx
EC number	231-869-6
CAS number	13446-34-9

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

**Identified uses:** laboratory chemical  
laboratory and analytical use

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

Carl Roth GmbH + Co KG  
Schoemperlenstr. 3-5  
D-76185 Karlsruhe  
Germany

**Telephone:** +49 (0) 721 - 56 06 0

**Telefax:** +49 (0) 721 - 56 06 149

**e-mail:** [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

**Website:** [www.carlroth.de](http://www.carlroth.de)

Competent person responsible for the safety data sheet : Department Health, Safety and Environment

**e-mail (competent person)** : [sicherheit@carlroth.de](mailto:sicherheit@carlroth.de)

### 1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
National Poisons Information Centre Beaumont Hospital	Beaumont Road	Dublin 9	01 809 2166	<a href="https://www.poisons.ie/">https://www.poisons.ie/</a>

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS			
Section	Hazard class	Hazard class and category	Hazard statement
3.10	acute toxicity (oral)	(Acute Tox. 3)	H301
3.3	serious eye damage/eye irritation	(Eye Dam. 1)	H318
3.9	specific target organ toxicity - repeated exposure	(STOT RE 2)	H373

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### 2.2 Label elements

#### Labelling according to Regulation (EC) No 1272/2008 (CLP)

##### Signal word

**Danger**

##### Pictograms

GHS05, GHS06,  
GHS08



##### Hazard statements

H301	Toxic if swallowed
H318	Causes serious eye damage
H373	May cause damage to organs (brain) through prolonged or repeated exposure (if inhaled)

##### Precautionary statements

###### Precautionary statements - prevention

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/eye protection/face protection.

###### Precautionary statements - response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.

##### Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H301	Toxic if swallowed.
H318	Causes serious eye damage.
P280	Wear protective gloves/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

### 2.3 Other hazards

There is no additional information.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Name of substance	Manganese(II) chloride tetrahydrate
Registration number (REACH)	01-2119934899-15-xxxx
EC number	231-869-6
CAS number	13446-34-9
Molecular formula	MnCl <sub>2</sub> · 4H <sub>2</sub> O

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Molar mass

197,9 g/mol

## SECTION 4: First aid measures

### 4.1 Description of first aid measures



#### General notes

Take off contaminated clothing.

#### Following inhalation

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

#### Following skin contact

Rinse skin with water/shower. In all cases of doubt, or when symptoms persist, seek medical advice.

#### Following eye contact

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

#### Following ingestion

Rinse mouth immediately and drink plenty of water. Call a physician immediately.

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

Irritation, Risk of serious damage to eyes, Risk of blindness

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

none

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media



#### Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings  
water spray, foam, dry extinguishing powder, carbon dioxide (CO<sub>2</sub>)

#### Unsuitable extinguishing media

water jet

### 5.2 Special hazards arising from the substance or mixture

Non-combustible.

#### Hazardous combustion products

In case of fire may be liberated: hydrogen chloride (HCl)

### 5.3 Advice for firefighters

Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures



#### For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe dust.

### 6.2 Environmental precautions

Keep away from drains, surface and ground water.

### 6.3 Methods and material for containment and cleaning up

#### Advice on how to contain a spill

Covering of drains.

#### Advice on how to clean up a spill

Take up mechanically. Control of dust.

#### Other information relating to spills and releases

Place in appropriate containers for disposal.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Provide adequate ventilation. Avoid dust formation. Avoid exposure. Clear contaminated areas thoroughly.

#### Advice on general occupational hygiene

When using do not eat or drink. Thorough skin-cleansing after handling the product.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in a dry place. Keep container tightly closed.

#### Incompatible substances or mixtures

Observe hints for combined storage.

#### Consideration of other advice

Store locked up.

#### • Ventilation requirements

Use local and general ventilation.

#### • Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C.

### 7.3 Specific end use(s)

No information available.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### National limit values

#### Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	Notation	Identifier	TWA [mg/m <sup>3</sup> ]	STEL [mg/m <sup>3</sup> ]	Source
EU	manganese, inorganic compounds	r	IOELV	0,05		2017/164/EU
IE	manganese, inorganic compounds	i	OELV	0,2		S.I. No. 619 of 2001
IE	manganese, inorganic compounds	r	OELV	0,05		S.I. No. 619 of 2001

#### Notation

i Inhalable fraction

r Respirable fraction

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)

#### Relevant DNELs/DMELs/PNECs and other threshold levels

##### • human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	0,2 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	0,004 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

##### • environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	0,025 mg/l	freshwater	short-term (single instance)
PNEC	0 mg/l	marine water	short-term (single instance)
PNEC	20,4 mg/l	sewage treatment plant (STP)	short-term (single instance)
PNEC	0,011 mg/kg	freshwater sediment	short-term (single instance)
PNEC	0,001 mg/kg	marine sediment	short-term (single instance)
PNEC	14,8 mg/kg	soil	short-term (single instance)

### 8.2 Exposure controls

#### Individual protection measures (personal protective equipment)

##### Eye/face protection



Use safety goggle with side protection.

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### Skin protection



#### • hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. 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. The times are approximate values from measurements at 22 ° C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

#### • type of material

NBR (Nitrile rubber)

#### • material thickness

0,3 mm

#### • breakthrough times of the glove material

>480 minutes (permeation: level 6)

#### • other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

### Respiratory protection



Respiratory protection necessary at: Dust formation. Particulate filter device (EN 143). P3 (filters at least 99,95 % of airborne particles, colour code: White).

### Environmental exposure controls

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 (crystalline)
Colour	pink
Odour	odourless
Odour threshold	No data available

#### Other physical and chemical parameters

pH (value)	4 – 6 (water: 50 g/l, 25 °C)
Melting point/freezing point	58 °C
Initial boiling point and boiling range	This information is not available.

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Flash point	not applicable
Evaporation rate	no data available
Flammability (solid, gas)	These information are not available
<u>Explosive limits</u>	
• lower explosion limit (LEL)	this information is not available
• upper explosion limit (UEL)	this information is not available
Explosion limits of dust clouds	these information are not available
Vapour pressure	This information is not available.
Density	2,01 g/cm <sup>3</sup> at 20 °C
Vapour density	This information is not available.
Bulk density	800 kg/m <sup>3</sup>
Relative density	Information on this property is not available.
<u>Solubility(ies)</u>	
Water solubility	1.980 g/l at 20 °C
<u>Partition coefficient</u>	
n-octanol/water (log KOW)	This information is not available.
Auto-ignition temperature	Information on this property is not available.
Decomposition temperature	>106 °C
Viscosity	not relevant (solid matter)
Explosive properties	Shall not be classified as explosive
Oxidising properties	none

### 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.

### 10.3 Possibility of hazardous reactions

Danger of explosion: Alkali metals, Zinc,  
Violent reaction with: Acids

### 10.4 Conditions to avoid

Keep away from heat. Decomposition takes place from temperatures above: >106 °C.

### 10.5 Incompatible materials

metals, Light metals

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## 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Exposure route	Endpoint	Value	Species	Method	Source
oral	LD50	250 mg/kg	rat	anhydrous	TOXNET

#### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

#### Serious eye damage/eye irritation

Causes serious eye damage.

#### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

#### Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

#### • Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

#### • Specific target organ toxicity - repeated exposure

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

#### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

#### Symptoms related to the physical, chemical and toxicological characteristics

##### • If swallowed

data are not available

##### • If in eyes

Causes serious eye damage, risk of blindness, Irritating to eyes

##### • If inhaled

data are not available

##### • If on skin

data are not available

#### Other information

None



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## SECTION 12: Ecological information

### 12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

#### Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
ErC50	61 mg/l	algae	ECHA	72 h

#### Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	>1.000 mg/l	microorganisms	ECHA	3 h
NOEC	560 mg/l	microorganisms	ECHA	3 h

### 12.2 Process of degradability

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

### 12.3 Bioaccumulative potential

Data are not available.

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

Data are not available.

### 12.6 Other adverse effects

Data are not available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. 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/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

#### Sewage disposal-relevant information

Do not empty into drains.

#### Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

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### 13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

### 13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

## SECTION 14: Transport information

<b>14.1</b>	UN number	<b>3288</b>
<b>14.2</b>	UN proper shipping name Hazardous ingredients	<b>TOXIC SOLID, INORGANIC, N.O.S.</b> Manganese(II) chloride tetrahydrate
<b>14.3</b>	Transport hazard class(es)	 Class 6.1 (toxic substances)
<b>14.4</b>	Packing group	III (substance presenting low danger)
<b>14.5</b>	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)
<b>14.6</b>	<b>Special precautions for user</b>	Provisions for dangerous goods (ADR) should be complied within the premises.
<b>14.7</b>	<b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b>	The cargo is not intended to be carried in bulk.
<b>14.8</b>	<b>Information for each of the UN Model Regulations</b>	
	<b>• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)</b>	
	UN number	3288
	Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S.
	Particulars in the transport document	UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Manganese(II) chloride tetrahydrate), 6.1, III, (E)
	Class	6.1
	Classification code	T5
	Packing group	III
	Danger label(s)	6.1 
	Special provisions (SP)	274, 802(ADN)
	Excepted quantities (EQ)	E1
	Limited quantities (LQ)	5 kg
	Transport category (TC)	2
	Tunnel restriction code (TRC)	E



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Hazard identification No	60
<b>• International Maritime Dangerous Goods Code (IMDG)</b>	
UN number	3288
Proper shipping name	TOXIC SOLID, INORGANIC, N.O.S.
Particulars in the shipper's declaration	UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Manganese(II) chloride tetrahydrate), 6.1, III
Class	6.1
Marine pollutant	-
Packing group	III
Danger label(s)	6.1
	
Special provisions (SP)	223, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 kg
EmS	F-A, S-A
Stowage category	A
<b>• International Civil Aviation Organization (ICAO-IATA/DGR)</b>	
UN number	3288
Proper shipping name	Toxic solid, inorganic, n.o.s.
Particulars in the shipper's declaration	UN3288, Toxic solid, inorganic, n.o.s., (Manganese(II) chloride tetrahydrate), 6.1, III
Class	6.1
Packing group	III
Danger label(s)	6.1
	
Special provisions (SP)	A3, A5
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 kg

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Relevant provisions of the European Union (EU)

- **Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)**

Not listed.

- **Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)**

Not listed.

- **Regulation 850/2004/EC on persistent organic pollutants (POP)**

Not listed.

- **Restrictions according to REACH, Annex XVII**

not listed

- **Restrictions according to REACH, Title VIII**

None.

- **List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list**

not listed

- **Seveso Directive**

2012/18/EU (Seveso III)			
No	Dangerous substance/hazard categories	Qualifying quantity (tonnes) for the application of lower and upper-tier requirements	Notes
H2	acute toxic (cat. 2 + cat. 3, inhal.)	50                      200	41)

#### Notation

- 41) - Category 2, all exposure routes  
- category 3, inhalation exposure route

#### Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

#### Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

#### Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

#### Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

#### Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

not listed

#### National inventories

Substance is listed in the following national inventories:

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Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed
KR	KECI	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

### Legend

AICS	Australian Inventory of Chemical Substances
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

## 15.2 Chemical Safety Assessment

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

## SECTION 16: Other information

### 16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
1.1	Registration number (REACH): This information is not available.	Registration number (REACH): 01-2119934899-15-xxxx	yes
2.1		Classification acc. to GHS: change in the listing (table)	yes
2.1	Remarks: For full text of Hazard- and EU Hazard-state- ments: see SECTION 16.		yes
2.2	Signal word: Warning	Signal word: Danger	yes
2.2		Pictograms: change in the listing (table)	yes
2.2		Hazard statements: change in the listing (table)	yes
2.2		Precautionary statements - prevention: change in the listing (table)	yes
2.2		Precautionary statements - response	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.2		Precautionary statements - response: change in the listing (table)	yes
2.2	Labelling of packages where the contents do not exceed 125 ml: Signal word: Warning	Labelling of packages where the contents do not exceed 125 ml: Signal word: Danger	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
2.2		Labelling of packages where the contents do not exceed 125 ml: change in the listing (table)	yes
8.1	Occupational exposure limit values (Workplace Exposure Limits): Data are not available.	Occupational exposure limit values (Workplace Exposure Limits)	yes
8.1		Occupational exposure limit values (Workplace Exposure Limits): change in the listing (table)	yes
8.1		Relevant DNELs/DMELs/PNECs and other threshold levels	yes
8.1		• human health values	yes
8.1		• human health values: change in the listing (table)	yes
8.1		• environmental values	yes
8.1		• environmental values: change in the listing (table)	yes
14.1	UN number: 3077	UN number: 3288	yes
14.2	UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	UN proper shipping name: TOXIC SOLID, INORGANIC, N.O.S.	yes
14.3	Transport hazard class(es)	Transport hazard class(es): class 6.1 hazard - toxic substances	yes
14.3	Class: 9 (miscellaneous dangerous substances and articles) (environmentally hazardous)	Class: 6.1 (toxic substances)	yes
14.5	Environmental hazards: hazardous to the aquatic environment	Environmental hazards: none (non-environmentally hazardous acc. to the dangerous goods regulations)	yes
14.8	UN number: 3077	UN number: 3288	yes
14.8	Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S.	yes
14.8	Particulars in the transport document: UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (Manganese(II) chloride tetrahydrate), 9, III, (-)	Particulars in the transport document: UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Manganese(II) chloride tetrahydrate), 6.1, III, (E)	yes
14.8	Class: 9	Class: 6.1	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8	Classification code: M7	Classification code: T5	yes
14.8	Danger label(s): 9 + "fish and tree"	Danger label(s): 6.1	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8	Environmental hazards: yes (hazardous to the aquatic environment)		yes
14.8	Special provisions (SP): 274, 335, 375, 601	Special provisions (SP): 274, 802(ADN)	yes
14.8	Transport category (TC): 3	Transport category (TC): 2	yes
14.8	Tunnel restriction code (TRC): -	Tunnel restriction code (TRC): E	yes
14.8	Hazard identification No: 90	Hazard identification No: 60	yes
14.8	UN number: 3077	UN number: 3288	yes
14.8	Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S.	yes
14.8	Particulars in the shipper's declaration: UN3077, ENVIRONMENTALLY HAZARDOUS SUB- STANCE, SOLID, N.O.S., (Manganese(II) chloride tetrahydrate), 9, III	Particulars in the shipper's declaration: UN3288, TOXIC SOLID, INORGANIC, N.O.S., (Manganese(II) chloride tetrahydrate), 6.1, III	yes
14.8	Class: 9	Class: 6.1	yes
14.8	Marine pollutant: yes (hazardous to the aquatic environment)	Marine pollutant: -	yes
14.8	Danger label(s): 9 + "fish and tree"	Danger label(s): 6.1	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8	Special provisions (SP): 274, 335, 966, 967, 969	Special provisions (SP): 223, 274	yes
14.8	EmS: F-A, S-F	EmS: F-A, S-A	yes
14.8	UN number: 3077	UN number: 3288	yes
14.8	Proper shipping name: Environmentally hazardous substance, solid, n.o.s.	Proper shipping name: Toxic solid, inorganic, n.o.s.	yes
14.8	Particulars in the shipper's declaration: UN3077, Environmentally hazardous substance, solid, n.o.s., (Manganese(II) chloride tetrahy- drate), 9, III	Particulars in the shipper's declaration: UN3288, Toxic solid, inorganic, n.o.s., (Man- ganese(II) chloride tetrahydrate), 6.1, III	yes
14.8	Class: 9	Class: 6.1	yes
14.8	Environmental hazards: yes (hazardous to the aquatic environment)		yes
14.8	Packing group: III9 + "fish and tree"	Packing group: III	yes

# Safety data sheet

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## Manganese(II) chloride tetrahydrate ≥99 %, p.a.

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
14.8		Danger label(s): 6.1	yes
14.8		Danger label(s): change in the listing (table)	yes
14.8	Special provisions (SP): A97, A158, A179, A197, 274	Special provisions (SP): A3, A5	yes
14.8	Limited quantities (LQ): 30 kg	Limited quantities (LQ): 10 kg	yes

### Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2017/164/EU	Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
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
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
IOELV	indicative occupational exposure limit value
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration



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## Manganese(II) chloride tetrahydrate ≥99 %, p.a.

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Abbr.	Descriptions of used abbreviations
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
S.I. No. 619 of 2001	Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001
STEL	short-term exposure limit
SVHC	Substance of Very High Concern
TWA	time-weighted average
vPvB	very Persistent and very Bioaccumulative

### Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

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

Code	Text
H301	toxic if swallowed
H318	causes serious eye damage
H373	may cause damage to organs (brain) through prolonged or repeated exposure (if inhaled)

### Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.