

SAFETY DATA SHEET



according to Regulation (EC) No 1907/2006 (REACH) as amended

Magnesium chloride hexahydrate

Creation date	01st June 2021	Version	1.3
Revision date	30th August 2024		

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

1.1. Product identifier

Substance / mixture	Magnesium chloride hexahydrate substance
Chemical name	Magnesium chloride hexahydrate
CAS number	7791-18-6
EC (EINECS) number	232-094-6
Registration number	01-2119485597-19-0001

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

Substance's intended use

Industrial chemicals. Component of infusion and dialysis solutions. Food supplement. Food additive. Medicinal products. Laboratory chemical substances.

Substance uses advised against

1.3. Details of the supplier of the safety data sheet

Manufacturer

Name or trade name	Macco Organiques, s.r.o.
Address	Zahradní 1938/46c, Bruntál 1, 792 01 Czech Republic
Identification number (CRN)	26819210
VAT Reg No	CZ26819210
Phone	+420 555 530 300
E-mail	macco@macco.cz

Competent person responsible for the safety data sheet

Name	Petr Ševčík
E-mail	petr.sevcik@macco.cz

1.4. Emergency telephone number

European emergency number: 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification of the substance in accordance with Regulation (EC) No 1272/2008

The substance is not classified as dangerous according to Regulation (EC) No 1272/2008.

Most serious adverse physico-chemical effects

Not specified.

Most serious adverse effects on human health and the environment

May cause skin irritation, respiratory tract irritation, eye irritation. May cause gastrointestinal irritation.

2.2. Label elements

Signal word

none

2.3. Other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605. Substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of Regulation (EC) No. 1907/2006 (REACH) as amended.

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SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical characterization

The substance specified below.

Identification numbers	Substance name	Content in % weight	Classification according to Regulation (EC) No 1272/2008	Note
CAS: 7791-18-6 EC: 232-094-6 Registration number: 01-2119485597-19-0001	substance main component Magnesium chloride hexahydrate	99-100	not classified as dangerous	

Full text of all classifications and hazard statements is given in the section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Take care of your own safety. If any health problems are manifested or if in doubt, inform a doctor and show him information from this safety data sheet. In the event of unconsciousness, do not provide food by mouth.

If inhaled

Terminate the exposure immediately; move the affected person to fresh air. In life threatening conditions first of all provide resuscitation of the affected person and ensure medical assistance.

If on skin

Remove contaminated clothes. And wash it before reuse. Wash the affected area with plenty of water, lukewarm if possible. Soap, soap solution or shampoo should be used if there is no skin injury. Provide medical treatment if skin irritation persists.

If in eyes

Rinse eyes immediately with a flow of running water, open the eyelids (also using force if needed); remove contact lenses immediately if worn by the affected person. No neutralization should be performed in any case! Provide medical treatment, specialized if possible.

If swallowed

Rinse out the mouth with clean water. In the event of issues, find medical help. DO NOT INDUCE VOMITING! Provide medical treatment.

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

If inhaled

May cause respiratory irritation. Not expected.

If on skin

Possible irritation.

If in eyes

Possible irritation.

If swallowed

Nausea, stomach pain, vomiting, diarrhoea.

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

Symptomatic treatment. The effects of acute magnesium toxicity are partially offset by the use of calcium tartrate. Ventricular support along with Calcium Chloride infusion and forced urination by means of mannitol can also be successful.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Accommodate extinguishing components to the location of fire. Alcohol-resistant foam, carbon dioxide, powder, water spray jet, water mist.

Unsuitable extinguishing media

Water - full jet.

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5.2. Special hazards arising from the substance or mixture

Non-flammable. Upon heating, decomposition occurs with the release of hydrogen chloride or chlorine.

5.3. Advice for firefighters

Self-Contained Breathing Apparatus (SCBA) with chemical resistant gloves. Use a self-contained breathing apparatus and full-body protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Follow the instructions in the Sections 7 and 8. Prevent contact with skin and eyes. Provide sufficient ventilation.

6.2. Environmental precautions

Prevent contamination of the soil and entering surface or ground water.

6.3. Methods and material for containment and cleaning up

Place the product mechanically in an appropriate manner. Dispose of the collected material according to the instructions in the section 13. After removal of the product, wash the contaminated site with plenty of water.

6.4. Reference to other sections

See the Section 7, 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Use personal protective equipment as per Section 8. Do not eat, drink or smoke when using this product. Wash hands and exposed parts of the body thoroughly after handling. Observe valid legal regulations on safety and health protection.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed containers in cold, dry and well ventilated areas designated for this purpose.

7.3. Specific end use(s)

not available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Not specified.

DNEL

Magnesium chloride hexahydrate					
Workers / consumers	Route of exposure	Value	Effect	Value determination	Source
Consumers	Oral	15 mg/kg bw/day	Chronic effects local	Calculation of value	CSR

PNEC

Magnesium chloride hexahydrate			
Route of exposure	Value	Value determination	Source
Drinking water	6.85 mg/l	Calculation of value	CSR
Marine water	0.685 mg/l	Calculation of value	CSR
Water (intermittent release)	11.7 mg/l	Calculation of value	CSR
Freshwater sediment	616.9 mg/kg of dry substance of sediment	Calculation of value	CSR
Sea sediments	61.69 mg/kg of dry substance of sediment	Calculation of value	CSR

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8.2. Exposure controls

Follow the usual measures intended for health protection at work and especially for good ventilation. Provide showers and eye wash possibility. Do not eat, drink and smoke during work. Wash your hands thoroughly with water and soap after work and before breaks for a meal and rest.

Eye/face protection

Protective goggles or face shield (based on the nature of the work performed).

Skin protection

When handling in long-term or repeatedly, use protective gloves. EN ISO 374-1. Other protection: protective workwear.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Respirator.

Thermal hazard

Not available.

Environmental exposure controls

Observe usual measures for protection of the environment, see Section 6.2.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	solid
Colour	colourless, white
Odour	without fragrance
Melting point/freezing point	117.2 °C
Boiling point or initial boiling point and boiling range	cannot be determined - decomposition occurs
Flammability	non-flammable
Lower and upper explosion limit	not applicable
Flash point	not applicable
Auto-ignition temperature	not applicable
Decomposition temperature	120 °C
pH	5.5-7 (5% solution at 20 °C)
Kinematic viscosity	not applicable
Solubility in water	304.35g / 100g 20°C
Solubility Ethanol	5.6 g / 100g 20°C
Partition coefficient n-octanol/water (log value)	not applicable
Vapour pressure	not applicable
Density and/or relative density	
Density	1.569 g/cm ³ at 17 °C
Relative vapour density	not applicable
Particle characteristics	data not available
Form	solid: crystalline, powder

9.2. Other information

Oxidising properties	It is not oxidising.
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SECTION 10: Stability and reactivity

10.1. Reactivity

The substance is non-flammable.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

The product is stable under normal conditions.

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10.4. Conditions to avoid

The product is stable and no degradation occurs under normal use. Humid air. Heat.

10.5. Incompatible materials

Strong oxidizing agents releasing chlorine.

10.6. Hazardous decomposition products

Not developed under normal uses. At high temperatures, irritating or toxic gases may be formed. Above 135°C hydrogen chloride, above 300°C chlorine. Reaction with metals may release hydrogen.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

No toxicological data is available for the substance.

Acute toxicity

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate								
Route of exposure	Parameter	Method	Value	Exposure time	Species	Sex	Value determination	Source
Oral	LD ₅₀	OECD 423	> 5000 mg/kg bw		Rat	F/M	Experimentally	CSR
Dermal	LD ₅₀	OECD 402	> 2000 mg/kg bw	24 hours	Rat	F/M	Experimentally	CSR

Skin corrosion/irritation

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate					
Route of exposure	Result	Method	Exposure time	Species	Source
Skin	Not irritating	OECD 404	15 minutes	Human	CSR

Serious eye damage/irritation

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate					
Route of exposure	Result	Method	Exposure time	Species	Source
Eye	Not irritating	OECD 405	72 hours	Rabbit	CSR

Respiratory or skin sensitisation

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate						
Route of exposure	Result	Method	Exposure time	Species	Sex	Source
Dermal	No effect	OECD 406	48 hours	Pig	F	CSR

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate					
Result	Method	Exposure time	Specific target organ	Species	Sex
Negative	OECD 476			Mouse (lymphoma)	
Negative	OECD 474	24 hours		Mouse	M

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Carcinogenicity

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate							
Route of exposure	Parameter	Method	Value	Exposure time	Result	Species	Sex
Oral	NOAEL	OECD 453	3370 mg/kg bw/day	96 weeks (7 days/week)	No effect	Rat	F/M

Reproductive toxicity

Based on available data the classification criteria are not met.

Magnesium chloride hexahydrate							
Effect	Parameter	Method	Value	Exposure time	Result	Species	Sex
Effects on fertility	NOAEL (P/F ₁)	OECD 422	1000 mg/kg bw/day	28 days (7 days/week)	No effect	Rat	F/M
Developmental toxicity	NOAEL	OECD 414	800 mg/kg bw/day	20 days (7 days/week)	No effect	Rat	F

Toxicity for specific target organ - single exposure

No data available for the substance. Based on available data the classification criteria are not met.

Toxicity for specific target organ - repeated exposure

No data available for the substance. Based on available data the classification criteria are not met.

Aspiration hazard

No data available for the substance. Based on available data the classification criteria are not met.

11.2. Information on other hazards

The substance does not have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data the classification criteria are not met.

Acute toxicity

Magnesium chloride hexahydrate							
Parameter	Method	Value	Exposure time	Species	Environment	Value determination	Source
LC ₅₀		4525 mg/l	96 hours	Fish (Pimephales promelas)	Fresh water	Experimentally	CSR
LC ₅₀	EPA OPPTS 850.1075	23420 mg/l	48 hours	Fish	Salt water	Experimentally	CSR
EC ₅₀		1171 mg/l	48 hours	Daphnia (Daphnia magna)	Fresh water	Experimentally	CSR
LC ₅₀		6959 mg/l	48 hours	Invertebrates (Americamysis bahia)	Salt water	Experimentally	CSR
NOEC	OECD 209	900 mg/l	3 hours	Aquatic microorganisms	Activated sludge		

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Chronic toxicity

Magnesium chloride hexahydrate							
Parameter	Method	Value	Exposure time	Species	Environment	Value determination	Source
NOEC		341 mg/l	21 days	Daphnia (Daphnia magna)	Fresh water	Experimentally	CSR
NOEC	OECD 201	213.5 mg/l	72 hours	Algae (Desmodesmus subspicatus)	Fresh water	Experimentally	CSR

12.2. Persistence and degradability

No data available for the substance.

12.3. Bioaccumulative potential

No data available for the substance.

12.4. Mobility in soil

No data available for the substance.

12.5. Results of PBT and vPvB assessment

Product does not contain any substance meeting the criteria for PBT or vPvB in accordance with the Annex XIII of Regulation (EC) No 1907/2006 (REACH) as amended.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms as it does not meet the criteria set out in section B of Regulation (EU) No 2017/2100.

12.7. Other adverse effects

Not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Hazard of environmental contamination; dispose of the waste in accordance with the local and/or national regulations. Proceed in accordance with valid regulations on waste disposal. Any unused product and contaminated packaging should be put in labelled containers for waste collection and submitted for disposal to a person authorised for waste removal (a specialized company) that is entitled for such activity. Do not empty unused product in drainage systems. The product must not be disposed of with municipal waste. Empty containers may be used at waste incinerators to produce energy or deposited in a dump with appropriate classification. Perfectly cleaned containers can be submitted for recycling.

Waste management legislation

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste, as amended. Decision 2000/532/EC establishing a list of wastes, as amended.

Waste type code

06 03 14 solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13

Packaging waste type code

06 03 00 wastes from the MFSU of salts and their solutions and metallic oxides

SECTION 14: Transport information

14.1. UN number or ID number

not subject to transport regulations

14.2. UN proper shipping name

not relevant

14.3. Transport hazard class(es)

not relevant

14.4. Packing group

not relevant

14.5. Environmental hazards

not relevant

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14.6. Special precautions for user

Reference in the Sections 4 to 8.

14.7. Maritime transport in bulk according to IMO instruments

not relevant

SECTION 15: Regulatory information

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

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18th December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing the European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, as amended. REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Commission Regulation (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.2. Chemical safety assessment

Chemical safety Report (CSR) has been carried out for the substance.

SECTION 16: Other information

Other important information about human health protection

The user is responsible for adherence to all related health protection regulations.

Key to abbreviations and acronyms used in the safety data sheet

ADR	European agreement concerning the international carriage of dangerous goods by road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substance and mixtures
EC	Identification code for each substance listed in EINECS
EC ₅₀	Concentration of a substance when it is affected 50 % of the population
EINECS	European Inventory of Existing Commercial Chemical Substances
EmS	Emergency plan
EU	European Union
EuPCS	European Product Categorisation System
IATA	International Air Transport Association
IBC	International Code For The Construction And Equipment of Ships Carrying Dangerous Chemicals
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
INCI	International Nomenclature of Cosmetic Ingredients
ISO	International Organization for Standardization
IUPAC	International Union of Pure and Applied Chemistry
LC ₅₀	Lethal concentration of a substance in which it can be expected death of 50% of the population
LD ₅₀	Lethal dose of a substance in which it can be expected death of 50% of the population
log K _{ow}	Octanol-water partition coefficient
NOAEL	No observed adverse effect level
NOEC	No observed effect concentration
OEL	Occupational Exposure Limits
PBT	Persistent, bioaccumulative and toxic
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Agreement on the transport of dangerous goods by rail

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UN	Four-figure identification number of the substance or article taken from the UN Model Regulations
UVCB	Substances of unknown or variable composition, complex reaction products or biological materials
VOC	Volatile organic compounds
vPvB	Very persistent and very bioaccumulative

Training guidelines

Inform the personnel about the recommended ways of use, mandatory protective equipment, first aid and prohibited ways of handling the product.

Recommended restrictions of use

not available

Information about data sources used to compile the Safety Data Sheet

REGULATION (EC) No. 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (REACH) as amended.
REGULATION (EC) No. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL as amended. Data from the manufacturer of the substance / mixture, if available - information from registration dossiers.

The changes (which information has been added, deleted or modified)

The version 1.3 replaces the SDS version from Monday, 4 September 2023. Changes were made in sections 1, 11, 12 and 16.

Statement

The safety data sheet provides information aimed at ensuring safety and health protection at work and environmental protection. The provided information corresponds to the current status of knowledge and experience and complies with valid legal regulations. The information should not be understood as guaranteeing the suitability and usability of the product for a particular application.