



JSC «KAUSTIK»

Volgograd
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Safety Data Sheet

Modified magnesium chloride

Version 1.1. Page 1 of 12

In accordance with REACH Regulation (EC) 1907/2006, as amended
by Regulation (EC) 2020/878

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/EC REPRESENTATIVE/ MANUFACTURER

1.1 Product identifiers

IUPAC name:	Magnesium dichloride hexahydrate
Synonyms:	Magnesium chloride hexahydrate, the magnesium salt of hydrochloric acid hexahydrate, bischofite
EC number:	616-575-1
EC name:	Magnesium chloride
CAS number:	7791-18-6
CAS name:	Magnesium chloride
RTECS:	OM2975000
Technical name:	Modified magnesium chloride
Trade name:	Modified magnesium chloride

1.2 Relevant identified uses of the substance

The substance is used in construction industry for production of magnesia cements (Sorel's cement), glass magnesium panels, xylolite slabs, glass magnesium roof tiles, foamed concrete (foamed magnesite) and gas concrete (gas magnesite) on the basis of magnesia binding material. It is also used in oil and gas industry as a component of drilling and killing fluids. Magnesium chloride is used in chemical industry for production of magnesium-containing compounds, including oxide, hydroxide, and magnesium metal, synthetic hydrotalcite, synthetic rubbers and thiocole, as well as fireproof materials and magnesium chlorate defoliant. The product is used in textile industry for the stabilization process at painting the product. It is use in agriculture as a fertilizer. The substance is also used for dust suppression, household and industrial sewage treatment, grinding materials production, and as a deicing agent.

The material is meant for deicing and snow cover control on road surfaces and in household: garages, car parkings, housing estates, yards, and entrances of multi-storey buildings. It is advantageous for ice buildup prevention. Magnesium chloride is recommended for use during snowfall at low temperatures on roads with high traffic intensity. Effective at temperatures from 0 to -30 °C.

The substance is intended for industrial use only. It has no use restrictions, when used as intended.

1.3 Details of the supplier of the safety data sheet /EC representative:

Manufacturer:	KAUSTIK JSC, Volgograd
Address (postal and legal):	40 let VLKSM str., 57, 400097, Volgograd, Russia
Telephone:	+7(8442) 40 63 03, +7(8442) 40 66 09
E-mail:	spk@kaustik.ru
EU representative:	Kaustik Europe b.v.
Address (postal and legal):	Wijnhaven 3-L, 3011 WG Rotterdam, The Netherlands
Telephone:	+31104111114; fax: +31104049922
E-mail:	office@kaustik-europe.com
Contact person:	Khodyrev Vladimir

1.4 Emergency telephone number

+7(8442) 406303 or +7(8442) 406992 from 8 a.m. till 5 p.m. Moscow time (UTC +3).



SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance

According to Regulation (EC) №1272/2008 (CLP), it does not belong to hazardous substances or to persistent, bioaccumulative or toxic substances according to Regulation (EC) №1907/2006.

Hazard class and category: In case of eye contact it may cause serious injuries/irritation, class 2

Risk factors: **H319:** Causes serious eye irritation

2.2 Label elements:

Symbol: None

Signal word: Attention

2.3 Other hazards

2.3.1 Data and findings regarding bioaccumulativity and toxicity (PBT) or persistence of a bioaccumulative substance (vPvB).

According to REACH regulation, PBT /vPvB assessments are not applicable to inorganic matters. Based on quantitative and qualitative model, modified magnesium chloride is neither persistent and bioaccumulative nor toxic.

2.3.2 Summary and overall Conclusions on endocrine disruptor (ED)

Modified magnesium chloride is not an endocrine disruptor as defined in Commission Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

Danger prevention measures:

Self-assessment

P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

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

P337+ P313: If eye irritation persists: Get medical advice/attention.

P402+P403+P404: Store in dry, well-ventilated place, in closed container.

The above stated precautionary measures are applicable to industrial conditions. Other or additional precautionary measures may relate to professional and consumptive use of modified magnesium chloride.



SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Chemical name (acc. to IUPAC)

Magnesium dichloride hexahydrate

Chemical formula

$MgCl_2 \cdot 6H_2O$

Composition general characteristics

Modified magnesium chloride is produced in the process of comprehensive brine processing. The brine is recovered by means of underground dissolution of magnesium chloride through drilling holes, bored at the surface of Bischofite deposits.

Components

Components:	CAS№	EC№ (EINECS, EILINCS)	Mass fraction, %
Magnesium dichloride hexahydrate	7791-18-6	EC 616-575-1	97
Impurities	None	None	Up to 3

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

In case of inhalation:

Remove victim to fresh air, take off contaminated clothing, lay horizontally, keep at rest, keep warm. If necessary, seek medical attention.

In case of skin contact:

Take off contaminated clothing. Rinse skin with running water, using soap. If necessary, seek medical attention.

In case of eye contact:

Rinse with plenty of running water, also under the eyelids, for 10- 15 minutes.

If necessary, get medical attention of an ophthalmologist.

In case of ingestion:

Rinse oral cavity with water, drink plenty of water, activated carbon, sodium sulphate (1 table spoon per 0,5 l of water), sip vegetable oil. Seek medical attention.

First aid equipment (medicine chest):

Cotton, glass eye-bath, saline purge, activated carbon.

4.2 Most important symptoms and effects, both acute and delayed

In case of intoxication by inhalation:

In case of high concentrations inhalation: asthenia, headache, throat irritation, coughing, sneezing, running nose, sore throat, pain in chest, rough breathing, dyspnoea, heart rhythm disorder.

In case of skin contact:

Redness, dryness, itching possible.

In case of contact with eyes

Redness, itching, lacrimation, possible swelling of the cornea.

In case oral intoxication (by swallowing):

Nausea, vomiting, stomachache, diarrhea.

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

Not required



SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing means

The product is non-inflammable and non-explosive. Use extinguishing measures, appropriate to main ignition source extinction.

Forbidden extinguishing measures:

No data available

5.2 Special hazards arising from the substance

Fire-and-explosion hazard general characteristics:

Non-inflammable and non-explosive product.

Fire-and-explosion hazard data

None, as the product is non-inflammable and non-explosive

Danger caused by combustion and/or thermal decomposition products:

At temperature above 100°C water evaporation and dehydration occur, at temperature above 500 °C, the degradation products are magnesium oxide and hydrogen chloride.

Hydrogen chloride is a toxic gas, inhalation poisoning can lead to coughing, suffocation, inflammation of the upper respiratory tract.

5.3 Advice for firefighters

As the product is non-flammable, use extinguishing measures for combustion sources. The combustion process can be involved packing

Personal protective equipment for fire extinction:

Fire-resistant suit completed with self-rescuer.

Specificity of firefighting:

Polymer packaging may be involved in combustion process.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedure

6.1.1 For non-emergency personnel

Notification for non-emergency personnel: «Avoid dust inhalation». Evacuate from hazardous location, provide emergency medical care, consult an expert.

For manufacturing personnel: working clothes and safety shoes, protecting from low-toxic solutions exposure, protective gloves, protective glasses.

6.1.2 For emergency responders

Protective suit, protective shoes, compressed air breathing apparatus, oxygen isolating apparatus.

6.2 Environmental precautions

Isolate the danger zone. Protect spills with an earthen rampart, collect them in dry containers and seal them tightly. Do not allow the substance to enter reservoirs, basements, sewers.

All emergency situations should be reported to the local sanitary and epidemiological control authorities.

6.3 Methods and materials for containment and cleaning up

Ref. Section 5. The product is non-combustible. Water and foam containers with product, located close to combustion area, preventing setting them on fire, tare integrity violation and product spillage.

6.4 Reference to other sections

Treat recovered material as described in the sections 7,8,13.



SECTION 7: HANDLING AND STORAGE

7.1 Precautions

Safety measures and collective means of protection

Availability of general supply and exhaust ventilation of work rooms. Aerosol emission zones should be equipped with local exhaust system. Manufacturing equipment and supply lines should be tight, containers for product storage should be sealed. Dust formation suppression and prevention of dust dispersion in working zone air, wet cleaning.

Personal hygiene rules observance.

Maximum sealing of vessels, supply lines and other equipment; periodic control of hazardous substances content in the working area air; limit test of hazardous substances in industrial effluents; purification of production facilities air to permissible levels of hazardous substance content before release into the atmosphere.

Control of hazardous substance content in environmental medium. Industrial effluents analysis. Waste management according to national regulations and rules.

7.2 Conditions of safe storage, including any incompatibilities

Conditions and periods of safe storage

Store in the closed, properly ventilated warehouse rooms or platforms designed for storage, which ensure prevention of moisture and direct sunlight ingress. Guaranteed shelf life – 1 year from the date of production.

Substances and materials, incompatible at storage

Organic substances, acids, alkalis.

Safety measures and storage rules in household

The product is not used in household.

Recommended materials for packaging

Polyethylene and polypropylene bags with net weight 25 kg, special-purpose big bags with net weight 0,5-1 t, including under specific order. It may be agreed with customer to use other types of packaging, ensuring absolute safety of the product and its quality preservation.

7.3 Specific end use(s)

Ref. Section 1.2. For more detailed information please contact the supplier.

Not intended for use as a food additive.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Operating zone parameters, subjected to obligatory control

Under manufacturing conditions it is recommended to control operating zone in terms of magnesium dichloride hexahydrate aerosol: TLV = 2.0 mg/m³

8.1.2 Measures for ensuring content of hazardous substances in admissible concentrations

Supply and exhaust ventilation of work rooms, local exhaust systems. Monitoring of hazardous substances content in the working zone air. Hermetically sealed equipment, vessels and connection nodes should be provided in the rooms for product handling.

Regular dry dusting in manufacturing facilities. Maximum mechanization of manufacturing process.



8.2 Exposure controls

8.2.1 Means of personnel individual protection

General recommendations:

Do not allow work with products with non-working ventilation, use personal protective equipment. Do not take food in the manufacturing facility during operation and in working clothes. Wash hands with warm water and soap before and after eating. All workers, involved in product handling, should undergo preemployment physical examination as well as periodic medical examinations.

Respiratory protection: Filtrating respirator particle filter P1 or other of similar function (DIN EN 143, DIN 14387).

Protective clothing (material, type): Dustproof overalls, protective shoes.

Hand protection: The following materials are suitable for protective gloves (Permeation time \geq 8 hours):

Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)

Polychloroprene - CR (0,5 mm)

Nitrile rubber/Nitrile latex - NBR (0,35 mm)

Butyl rubber - Butyl (0,5 mm)

Fluoro carbon rubber - FKM (0,4 mm)

Polyvinyl chloride - PVC (0,5 mm)

The times listed are suggested by measurements taken at 22 °C and constant contact.

Eyes protection: Wear glasses with side protection (EN374). /5/

Individual protection means for use in household: The product is not used in household.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Index

a) Physical state	Solid substance
b) Colour	From white to light gray with shades from yellowish to light brown
c) Odour	No specific odor
d) Melting/freezing point, °C	116 °C slow decomposition
e) Initial boiling point and boiling range, °C	1412 °C
f) Flammability	Non inflammable
g) Lower and upper explosion limit	Do not apply to solids
h) Flash point	Do not apply
i) Auto-ignition temperature	Do not apply
j) Decomposition temperature	>116 °C
k) pH	4.5-7 (50 g/l, H ₂ O, 20 °C)
l) Kinematic viscosity	Do not apply to solids
m) Water solubility at 20 °C, mg/l	1670 g/l
n) Partition coefficient: n-octanol/water	Not defined. When dissolved, the substance forms an inorganic ionic liquid
o) Vapor pressure	Do not apply to solids
p) Relative density, g/cm ³	1,560-1,589
q) Relative vapour density	Do not apply to solids
r) Particle characteristics	Granules or flakes



SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Reacts with acids and alkalis

10.2 Chemical stability

Stable under standard conditions of manufacturing, storage, transportation and handling

10.3 Possibility of hazardous reactions

No data

10.4 Conditions causing hazardous changes

Strong heating (decomposition at 116 °C)

10.5. Incompatible materials

No data.

10.6 Hazardous Decomposition Products

In case of fire, refer to Section 5.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes

Acute toxicity (oral)	Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	Not classified (Based on available data, the classification criteria are not met)
Skin corrosion/irritation	Not classified (Based on available data, the classification criteria are not met)
Serious eye damage/irritation	In case of eye contact it may cause serious injuries/irritation, class 2
Respiratory or skin sensitisation	Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	Not classified (Based on available data, the classification criteria are not met)

Acute toxicity indices (LD₅₀), routes of exposure (intra-gastric, epidermic), animal specimen; LC₅₀, exposure period (h), animal specimen):

General information on the product is not available.

Magnesium dichloride hexahydrate:

LD₅₀ =7333-8100 mg/kg, intra-gastric, rats;

LC₅₀ is not attained. /1,5/

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Magnesium dichloride hexahydrate is not an endocrine disruptor as defined in Regulations ((EC) No 1907/2006, (EC) No 2017/2100, (EC) No 2018/605).



SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Hygienic norms:

Components	TLV atm. air or SRLI atm. air, mg/m ³ (LC, hazard class)	TLV water or app. perm. level water, mg/l (LC, hazard class)	TLV fish industry or SRLI fish industry., mg/l (LC, hazard class)	TLV or app. perm. conc. in soil, mg/kg (LC)
Magnesium dichloride hexahydrate	0,1 (SRLI)	chlorides LC: 350 (organic aftertaste, class 4)	Magnesium cation Mg ⁺ : 40 san. tox class 4); 940 at 13-18 %, (tox., class 4) (for seas and their individual parts); Chloride anion Cl ⁻ : 300 (san.-tox., ecol. class 4); 11900 at 12-18 % (toxicity., class 1) (for seas and their individual parts)	Not identified

LC₅₀=9530 mg/l, Fathead minnow, 96 hours;

EC₅₀=740 mg/l, Daphnia magna, 48 hours;

EC₅₀=2200 mg/l, Scenedesmus subspicatus, 72 hours. /1,5/

12.2 Persistence and degradability

The main component of the product is not biodegradable, does not transform in the environment.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Bioaccumulative potential and persistence assessment

PBT/vPvB (persistence, bioaccumulativity, toxicity/strong persistence, strong bioaccumulativity) assessment was not carried out, as chemical safety assessment is not required/was not carried out.

12.6 Endocrine disrupting properties

Magnesium dichloride hexahydrate is not an endocrine disruptor.

12.7 Other adverse effects

No data.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Treat recovered material as described in the sections 7,8.

Information on places and methods of neutralization, elimination or disposal of the substance (material) wastes, including packaging:

Wastes or spoilage should be collected from the accident site to hermetically sealed container, marked and sent for neutralization to industrial wastes landfill, disposal facilities or places, agreed with local agencies for consumer rights and human welfare protection.

Irrevocable or obsolete packaging is eliminated as the main waste.

Removal and neutralization of the product is carried out in accordance with national norms and regulations and current directives of local executive authorities.

Safety measures at handling wastes, formed at use, storage, transportation etc.:

Safety measures at handling wastes are the same as recommended for product handling (See Sections 6-8)

Recommendations on disposal of wastes, formed at household use:

It is not used in household.



SECTION 14: TRANSPORT INFORMATION

Ground transport (ADR/RID)

14.1. UN number	Not classified
14.2. Proper shipping name	Modified magnesium chloride
14.3. Transportation hazard category	Non-hazardous goods
14.4. Packing group	None
14.5. Environmental hazards	None
14.6. Special precautions for user	None

Air transport (ICAO)

14.1. UN number	Not classified
14.2. Proper shipping name	Modified magnesium chloride
14.3. Transportation hazard category	Non-hazardous goods
14.4. Packing group	None
14.5. Environmental hazards	None
14.6. Special precautions for user	None

Maritime transport (IMDG)

14.1. UN number	Not classified
14.2. Proper shipping name	Modified magnesium chloride
14.3. Transportation hazard category	Non-hazardous goods
14.4. Packing group	None
14.5. Environmental hazards	None
14.6. Special precautions for user	None

Water transport (ADN)

14.1. UN number	Not classified
14.2. Proper shipping name	Modified magnesium chloride
14.3. Transportation hazard category	Non-hazardous goods
14.4. Packing group	None
14.5. Environmental hazards	None
14.6. Special precautions for user	None

Transport marking:

"Protect from moisture"

14.7. Bulk transportation according to IMO instruments (Chapter VI or Chapter VII of SOLAS, Annex II or Annex V of MARPOL, the IBC Code, the IMSBC Code, and the IGC Code or its earlier versions, namely EGC Code or GC Code)

Not applicable



SECTION 15: REGULATORY INFORMATION

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

- It is not regulated by international conventions and agreements (Montreal Protocol, Stockholm Convention etc).
- According to water contamination hazard classification (WGK), the substance is referred to class 1 (low-hazardous for water).
- According to national legislation, the class of products that cause serious eye damage/irritation is 2B [1].

15.2. Chemical safety assessment

Chemical safety assessment of this substance was not carried out.

SECTION 16: OTHER INFORMATION

Training advice

Read the safety data sheet before using the product.

Recommended restrictions on use:

No restrictions at intended application.

Advice on using information stated in the Safety Data Sheet

The European SDS format compliant with the applicable European legislation is not intended for use or distribution in countries outside the European Union with the exception of Norway and Switzerland. Safety datasheets applicable in other countries/regions are available upon request.

The information given corresponds to the current state of our knowledge and experience of the product, and is not comprehensive. This applies to product which conforms to the specification, unless otherwise stated.

Responsible executives, who receive this data sheet, must guarantee that every person, potential to use, treat, dispose or contact with the product in some other way, have read and understood the information described here properly. Note that appearance and content of safety data sheets even for the same product may vary in different countries to comply with requirements of different regulations.

Updated the content of the sections

The safety data sheet was developed for the first time.



Key or legend to abbreviations and acronyms used in the safety data sheet

ADN	European Agreement on the International Carriage of Dangerous Goods by Inland Waterways
ADR	Agreement on the International Carriage of Dangerous Goods by Road
CAS number	is a unique numerical identifier for chemical compounds, polymers , biological nucleotide or amino acid sequences, mixtures and alloys , listed in the Chemical Abstracts Service registry
CLP	is a European Union regulation from 2008, which aligns the European Union system of classification, labelling and packaging of chemical substances and mixtures to the Globally Harmonised System (GHS)
EC ₅₀	Median effectivel concentration
EGC	The Code for Existing Ships Carrying Liquefied Gases in Bulk
ED	Endocrine disruptor
EINECS, ELINCS	European Community Number (EC)
GC	The Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk
IBC	The International Code for the Construction and Equipment of Ships carrying dangerous Chemicals in Bulk
ICAO	Technical Instructions for The Safe Transport of Dangerous Goods by AIR
IGC	the International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk
IMDG	International Maritime Dangerous Goods
IMO	The International Maritime Organization
IMSBC	The International Maritime Solid Bulk Cargoes Code
IUPAC	is a system for naming chemical compounds according to the International Union of Pure and Applied Chemistry
LC	Lethal concentration
LC ₅₀	Median lethal concentration
LD ₅₀	Lethal dose
MARPOL	Consolidated edition, 2006
OEL	Occupational exposure limit
PBT	Persistent, bioaccumulative and toxic substances
RID	International Regulations Concerning the Carriage of Dangerous Goods by Rail
RTECS	Register of Toxic Effects of Chemical Compounds
SOLAS	The International Convention for the Safety of Life at Sea, 1974
SRLI	Safe Reference Level of Impact
STOT	Specific Target Organ Toxicity
TLV	Upper limit of permissible exposure concentration of a hazardous substance in the workplace
vPvB	Very persistent and very bioaccumulative substances
WGK	Water contamination hazard classification



Sources of basic information

1. Russian Safety Data Sheet–Modified magnesium chloride KAUSTIK JSC (of 2018).
2. Regulation EC № 1272/2008 of the European Parliament and of the Council of 16.12.2008
3. Commission Regulation (EU) 2015/830 of 28 May 2015, amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation and Authorization of Chemicals (REACH).
4. 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).
5. GESTIS Substance Database. <https://gestis-database.dguv.de/data?name=003450>
6. European Chemicals Agency Registered Substance Information Database (ECHA). <https://echa.europa.eu/information-on-chemicals> .

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