



Volgograd  
Issue date: 01.12.2014  
Revision date : 16.10.2017

*Safety Data Sheet*  
**Magnesium Hydroxide**

Version 1.4. Page 1 of 10

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

### 1.1 Product identifiers

IUPAC name:	Magnesium dihydroxide
Synonyms::	Magnesium dihydrate, hydrate of magnesia, caustic magnesia
EC number:	215-170-3
EC name:	Magnesium hydroxide
CAS number:	1309-42-8
CAS name:	Magnesium hydroxide
RTECS:	OM3570000
Reference number:	01-2119488756-18-0034

### 1.2 Relevant identified uses of the substance

Magnesium hydroxide is used as highly effective non-toxic inorganic flame retardant, filler, and smoke suppressant additive for production of plastics and filled (co)polymer compounds based on elastomers, thermosets, thermoplastics, including those based on polyvinylchloride, polyamides, polystyrene, polyethylene, polypropylene, polyethylene terephthalate, ultrathene, and so on, in paper and cardboard industry, as a mild neutralizing agent for waste and natural water treatment, as raw material in chemical and pharmaceutical industry. For more details, see the Appendix. It has no use restrictions, when used as intended.

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

Manufacturer:	NikoMag JSC, Volgograd
Address (postal and registered office):	40 let VLKSM str., 57, Volgograd, Russia, 400097
Telephone:	+7(8442) 40 63 03, +7(8442) 40 66 10
E-mail:	spk@kaustik.ru
Contact name:	Aleksey Chebotarev
EC representative:	Kaustik Europe b.v.
Address (postal and registered office):	Wijnhaven 3-L, 3011 WG Rotterdam, The Netherlands
Telephone:	+31104111114; fax: +31104049922
E-mail:	<a href="mailto:office@kaustik-europe.com">office@kaustik-europe.com</a>
Contact name:	Vladimir Khodyrev
<b>1.4 Emergency telephone number</b>	+7(8442) 406610 or +7(8442) 406750 from 8 a.m. to 5 p.m., Moscow time (UTC +3).

## SECTION 2: HAZARDS IDENTIFICATION

By acute toxicity, the product presents low hazard in terms of human exposure. It has a slight irritant effect on skin and eye mucosa. Inhalation of high concentrations may cause upper respiratory tract irritation. It affects the organoleptic properties of water, pH of water and soil. It is of low toxicity to aquatic biota.

Non-combustible product. Dust-air mixtures are non-combustible and non-explosive.

**2.1 Classification of the substance**

This substance is not classified as hazardous according to Regulation (EC) No. 1272/2008 (CLP) or persistent, bioaccumulative and toxic according to Regulation (EC) No. 1907/2006.

**2.2 Label elements:**

Symbol: None

Signal word: None

**2.3 Other hazards****2.3.1 Data and findings regarding bioaccumulativity and toxicity (PBT) or persistence of a bioaccumulative substance (vPvB)**

According to the REACH Regulation, PBT /vPvB assessment is not applicable to inorganic substances.

Magnesium hydroxide is not persistent, bioaccumulative or toxic based on quantitative and qualitative evidence presented.

**2.3.2 Danger prevention measures:**

If in eyes, carefully rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, seek medical aid. Wash your hands after work.

**SECTION 3: COMPOSITION/ INFORMATION ON INGREDIENTS****3.1 Substances**

Chemical name (according to IUPAC)

Magnesium dihydroxide

Chemical formula

Mg(OH)<sub>2</sub>, H-O-Mg-O-H

General composition data

The product is available in types A, B, M7 and M10, having different weight content of magnesium hydroxide: type A - untreated magnesium hydroxide (no less than 99 %); type B - untreated magnesium hydroxide, aqueous paste (no less than 50 %); types M7 and M10 – surface-modified magnesium hydroxide (no less than 97 %).

Components

Ingredients:	CAS No.	EC No. (EINECS, EILINCS)	Content, wt. %
Magnesium hydroxide Mg(OH) <sub>2</sub>	1309-42-8	EC 215-170-3	no less than 50
Water H <sub>2</sub> O	7732-18-5	EC 231-791-2	no more 50

**SECTION 4: FIRST AID MEASURES****4.1 Description of first aid measures****If inhaled:**

Move to fresh air, keep warm and quiet. Seek medical advice if necessary.

**In case of skin contact:**

Remove contaminated clothes. Wash skin with running water and soap. Seek medical advice if necessary.

**In case of eye contact:**

Flush eyes with running water for several minutes, while keeping the eyelids wide open. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice if necessary.

**In case of ingestion:**

Rinse mouth with water, drink plenty of water, take activated charcoal, saline purgative. Seek medical advice if necessary.

**First aid kit:**

Cotton, glass eye cup, saline purgative, activated charcoal.

**4.2 Most important symptoms and effects, both acute and delayed****In case of intoxication by inhalation:**

Inhalation in high concentrations may cause irritation to throat, coughing, sore throat, irregular respiratory rhythm, headache, fever.

**In case of skin contact:**

Slight irritant effect on skin (slight hyperemia).

**In case of intoxication by ingestion (if swallowed):**

Swallowing of large quantities may cause abdominal pains, nausea, vomiting, diarrhea, drowsiness.

**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-combustible. Any fire extinguishing media can be used in its presence. If combustion occurs, use water, dry powder extinguishers, sand, fire blanket.

**Forbidden extinguishing measures:**

None

**5.2 Special hazards arising from the substance**

Non-combustible, fire - and explosion-safe.

**Fire and explosion hazards**

None, because the product is non-combustible and non-explosive.

**Combustion and/or thermal degradation products hazard:**

Thermal degradation product is magnesium oxide.

**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-fighting:**

In case of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

Wear chemical-resistant oversuit.

**Specific fire-fighting procedures:**

If possible, remove containers with the product from the fire area.

## **SECTION 6: ACCIDENTAL RELEASE MEASURES**

### **6.1 Personal precautions, protective equipment and emergency procedure**

#### **6.1.1 For non-emergency personnel**

For collective protection, all rooms where magnesium hydroxide is produced, used and stored must be equipped with suction and exhaust ventilation ensuring workplace air quality to meet the regulatory requirements. The manufacturing equipment must be earthed. Persons exposed to the substance must be provided with individual protection means.

#### **6.1.2 Personal safety equipment**

See Section 8. Persons exposed to the product must be provided with individual protection means: special clothing (cotton fabric suit); safety footwear (rubber boots); rubber gloves; filter respirators; clear lens safety goggles.

### **6.2 Environmental precautions**

If scattered indoors, sweep up the clean solid product into a suitable container and recover into the process for reuse. Wash the scattering area with water leading the wash water to the industrial sewage system. All operations require the use of individual protection means. Sweep up the contaminated scattered and spilled product into a suitable container and send it for disposal to the facilities approved by the local supervision agencies.

Ensure an intensive ventilation in the premises.

If scattered outdoors (transport accident) keep away all personnel not involved in emergency response. All entrants must wear individual protection means and keep upwind. Using a spade, collect the scattered magnesium hydroxide and spilled magnesium hydroxide suspension into a suitable container together with the surface layer and send it for disposal to the facilities approved by the local supervision agencies. Collect scattered and intact packages with the product and send them for the purpose intended.

### **6.3 Methods and materials for containment and cleaning Up**

See Section 5. The product is non-combustible. Cool down the product containers placed in the vicinity of the fire with water/foam trying to avoid combustion, damage to the package and scattering of the product.

### **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**

See Sections 6,8. Manufacturing equipment must be sealed. Avoid damage to the integrity of transport package. Ensure ventilation of the premises. The operating personnel must be trained in safe handling of the product and be provided with individual protection means.

Environmental protection is ensured by the observance of manufacturing instructions, air-tightness of the manufacturing equipment, and package integrity. Workplace air quality must be regularly monitored in the production rooms. Cleaned workspace air must be discharged to the atmosphere. Waste water resulting from washing and wet cleaning must be sent to biological treatment plants. Do not allow product to reach water bodies, soil or sewage system.

### **7.2 Conditions of safe storage, including any incompatibilities**

#### **Conditions and periods of safe storage:**

See Sections 7,8. Magnesium hydroxide must be kept in original containers, in indoor storage areas away from humidity and at least one meter away from heating devices.

Storage temperature: no restrictions. Guaranteed shelf life is two years from the date of manufacture.

#### **Incompatible substances and materials:**

Organics, acids.

#### **Safety measures and storage precautions for domestic use:**

The product is not designed for domestic use.

#### **Recommended packaging materials:**

Magnesium hydroxide with net weight up to 50 kg shall be packed in air-tight polyethylene valve bags, polypropylene bags, polypropylene valve bags with polyethylene lining, laminated polypropylene bags, or other bags. Magnesium hydroxide with net weight up to 1000 kg shall be packed in soft containers made of polypropylene fabric type MKR-1000, specially designed for loose and wet products. As agreed with the customer, other packaging types and weights can be used provided that they guarantee the absolute safety of the products and do not compromise their properties.

### **7.3 Specific end use(s)**

Included as an ingredient in polymer products, chemical raw materials, food supplements used as prescribed by food producers.

pH control agent.

The exposure scenarios are given in the Appendix.

**SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION****8.1 Control parameters****8.1.1 Workplace Control Parameters**

Depending on the OEL for total dust of 10 mg/m<sup>3</sup> for inert respirable dust and 3 mg/m<sup>3</sup> for inhalable dust 10 mg/m<sup>3</sup>.

**8.1.2 Engineering Controls to Keep Exposure Within Permissible Limits**

Air-tight equipment, general suction and exhaust ventilation. The equipment must be ESD safe.

**8.2 Exposure controls****8.2.1 Personal Protection Means for Personnel**

General guidelines:

Preliminary and regular medical examinations for the personnel. Compliance with industrial hygiene regulations.

Respiratory protection: any type of aerosol filter.

Protective clothing (material, type):

Special clothing (cotton fabric suit); clear lens safety goggles; rubber gloves.

Personal protective equipment for domestic use:

Not used.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties****Index**

a) Appearance	White powder (types A, M7, M10) and paste (type B)
b) Odor	No specific odor
c) Odour threshold	N/A.
d) pH	9,5-10,5
e) Melting/freezing point, °C	>350 <sup>0</sup> C dec
f) Initial boiling point and boiling range, °C	N/A.
g) Flash point	N/A.
h) Evaporation rate	N/A.
i) Flammability	Non inflammable
j) Upper/lower flammability or explosive limits	N/A.
k) Vapor pressure	Non inflammable
l) Vapor density	Non inflammable
m) Specific density, g/cm <sup>3</sup> Tamped density, g/cm <sup>3</sup>	Non inflammable 0,3-0,4
n) Water solubility at 20 °C, mg/l	9.0-11.6
o) Partition coefficient: n-octanol/water	Non inflammable
p) Auto-ignition temperature	Non inflammable
q) Decomposition temperature	Non inflammable
r) Viscosity	Non inflammable
s) Explosive characteristics	fireproof and non-explosive
t) Oxidizing characteristics	non-oxidizing

**9.2 Other information**

Fat insoluble, absorbs oil on particle surface

**SECTION 10: STABILITY AND REACTIVITY****10.1 Reactivity**

None.

**10.2 Chemical stability:**

The product is stable if operation and storage conditions are observed.

**10.3 Possibility of hazardous reactions:**

Reacts with alkali, ammonium salts, sulfur, selenium, phosphorus, hydrogen sulfide, phosphine.

**10.4 Conditions to avoid:**

N/A.

**10.5 Incompatible materials:**

Avoid contact with organic substances, acids, alkali.

**10.6 Hazardous decomposition products:**

None.

**SECTION 11: TOXICOLOGICAL INFORMATION****11.1 Information on toxicological effects****General information on exposure:**

For single intragastric and cutaneous administration the product is of low hazard for experimental animals.

**Exposure routes:**

Via inhalation, ingestion, contact with skin and eye mucosa.

**Affected organs, tissues and body systems:**

Respiratory, nervous and cardiovascular systems, gastrointestinal tract, liver, kidneys, mineral metabolism, skin, eyes.

**Information on the harmful exposure during direct contact with the substance and consequences of such exposure:**

The product has a slight irritant effect on skin and eye mucosa; inhalation in high concentrations may cause irritation to upper respiratory tract. Not absorbed through the intact skin. Sensitization: not studied.

**Information on distant hazardous effects on the body:**

Subtle cumulative effect. Embryotoxic, gonadotoxic, teratogenic, mutagenic and carcinogenic effects not studied.

**Acute toxicity (DL<sub>50</sub>), route of entry (intragastric, cutaneous), animal; CL<sub>50</sub>, exposure time (h), animal):**

DL<sub>50</sub> 8500 mg/kg, intragastric, rats, mouse

DL<sub>50</sub>>2500 mg/kg, cutaneous, rabbits

Doses (concentrations) having minimum toxic effect:

2747 mg/m<sup>3</sup>, intragastric, in children (drowsiness, coma).



Volgograd

Issue date: 01.12.2014

Revision date: 16.10.2017

## Magnesium Hydroxide SDS

version 1.4. Page 8 of 10

### SECTION 12: ECOLOGICAL INFORMATION

#### 12.1 Toxicity

Hygienic regulations:

Components	TLV water or approximate permissible level in water, mg/l (LC, hazard class)	TLV fishery or ASIL fishery, mg/l (LC, hazard class)
Magnesium hydroxide	TLV water, magnesium 50 mg/l, organoleptic – adds flavour, hazard class 3. pH monitoring required/should be within the range of 6.5 to 8.5.	TLV fishery, magnesium (for water-soluble forms) 40 mg/l, sanitary-toxicological, hazard class 4; for water bodies 940 mg/l at 13-18 ‰, toxicological, hazard class 4. pH monitoring required/should be within the range of 6.5 to 8.5.

#### 12.2 Persistence and degradability

The product is stable in abiotic conditions. It is transformed by the environment into basic magnesium carbonate. The product affects organoleptic properties of water, gives specific flavour to water. It changes pH of water and soil. It is of low toxicity to water life.

#### 12.3 Bioaccumulative potential

Not relevant

#### 12.4 Mobility in soil

Magnesium is transformed by the environment into basic magnesium carbonate.

#### 12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

#### 12.6 Other adverse effects

The product changes organoleptic properties of water, adds specific flavour to water.

### SECTION 13: DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

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

#### Description of places and methods used to neutralize, dispose of or remove the substance (material) waste, including its package:

Clean product residues must be collected into a container and recovered into the process for reuse. Contaminated product must be collected into a container and sent for disposal to the facilities approved by the local supervision agencies. Wash water contaminated with waste product must be sent to biological treatment plants. Non-returnable packages cleaned from the product must be collected into containers and sent for disposal to the facilities approved by the local supervision agencies; combustible packages may be sent for incineration in the industrial waste incinerator.

#### Waste handling precautions for waste resulting from product use, storage, transportation, etc.

See Sections 6-8. All operations with the product residues require the use of individual protection means and must be carried out in a ventilated room. The personnel handling the product must be familiar with the physical and chemical properties, toxicity behavior of the product, must be given instructions, trained and assessed as having the knowledge of procedures for safe handling of product residues.

#### Guidelines for disposal of waste resulting from domestic usage of the product:

Not applicable.



**SECTION 14: TRANSPORT INFORMATION****Ground transport (ADR/RID)**

<b>14.1 UN number</b>	Not classified
<b>14.2 Proper shipping name</b>	Magnesium hydroxide (type)
<b>14.3 Transportation hazard category</b>	Non-hazardous goods
<b>14.4 Packaging group</b>	None
<b>14.5 Ecological hazards</b>	None
<b>14.6 Special user precautions</b>	None

**Water transport (ADN)**

<b>14.1 UN number</b>	Not classified
<b>14.2 Proper shipping name</b>	Magnesium hydroxide (type)
<b>14.3 Transportation hazard category</b>	Non-hazardous goods
<b>14.4 Packaging group</b>	None
<b>14.5 Ecological hazards</b>	None
<b>14.6 Special user precautions</b>	None

**Maritime transport (IMDG)**

<b>14.1 UN number</b>	Not classified
<b>14.2 Proper shipping name</b>	Magnesium hydroxide (type)
<b>14.3 Transportation hazard category</b>	Non-hazardous goods
<b>14.4 Packaging group</b>	None
<b>14.5 Ecological hazards</b>	None
<b>14.6 Special user precautions</b>	None

**Air transport (ICAO/IMDG)**

<b>14.1 UN number</b>	Not classified
<b>14.2 Proper shipping name</b>	Magnesium hydroxide (type)
<b>14.3 Transportation hazard category</b>	Non-hazardous goods
<b>14.4 Packaging group</b>	None
<b>14.5 Ecological hazards</b>	None
<b>14.6 Special user precautions</b>	None

**Transport marking:**

"Protect from moisture"

**14.7 Bulk transportation under Annex II to the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 and International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)**

Not applicable

## SECTION 15: REGULATORY INFORMATION

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

This product is not controlled under international conventions and agreements (Montreal Protocol, Stockholm Convention, etc.).

According to the Swiss Toxicological Information Centre (CH), the substance is classified as potentially hazardous (class 4).

According to the water hazard classification (WGK), the substance is classified into class 1 (low hazard to waters).

### 15.2. Chemical safety assessment

Chemical safety assessment has been carried out for this substance.

**Storage class pursuant to TRGS 510 13**

## SECTION 16: OTHER INFORMATION

### Training Advice

Read the safety data sheet before using the product.

### Recommended restrictions on use:

No restrictions if used as intended.

### Advice on Using the Information Stated in the Safety Data Sheet

The European SDS format compliant with the applicable European legislation is not intended for use nor 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 exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, as well as protection of human welfare and the environment.

Responsible executives, who receive this data sheet, must guarantee that every person, which might use, treat, dispose of or otherwise contact with the product, have read and understood the information described here properly. Note that appearance and content of Safety Data Sheets for the same product may vary in different countries to comply with requirements of different regulations.

Updated content of sections: 7.2.

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

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

### Sources of Basic Information

1. Safety Data Sheet for Magnesium Hydroxide of NikoMag CJSC (issued in 2013).
2. Regulation (EC) No. 1272/2008 of the European Parliament and of the Council dated 16.12.2008
3. Commission Regulation (EU) No 830/2015 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
4. ACGIH (American Conference of Governmental Industrial Hygienists) (2006).
5. Annual reports of the Committees on TLVs and BEIs for year 2005. ACGIH publication #0106A. <http://www.acgih.org/store/ProductDetail.cfm?id=1832>
6. Chemical Safety Report: Magnesium Hydroxide