



NikoMag™

Volgograd

Issue date: 25.12.2014

Revision date: 20.02.2017

Safety Data Sheet
Magnesium Oxide

Version 1.2. Page 1 of 9

1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifiers

IUPAC name:	Magnesium oxide
Synonyms:	Periclase, magnesia, calcined magnesia
EC number:	215-171-9
EC name:	Magnesium oxide
CAS number:	1309-48-4
CAS name:	Magnesium oxide
RTECS:	OM3850000

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

Magnesium oxide is used as highly effective non-toxic inorganic filler and additive for production of virtually all types of plastics and rubber, in production of transformer steel. It is used as raw material in chemical, pharmaceutical and food industries.

1.3 Details of the supplier of the safety data sheet:

Manufacturer:	NikoMag JSC, Volgograd
Address (postal and registered office):	40 let VLKSM St., 57, Volgograd, 400097, Russia
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):	Oslo, 1, 2993 LD Barendrecht, Netherlands
Telephone:	+31104111114; fax: +31104049922
Contact name:	Vladimir Khodyrev
1.4 Emergency telephone number	+7(8442) 406610 or +7(8442) 406750 from 8 a.m. to 5 p.m., Moscow time (UTC +3).

2 HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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 (REACH).

2.2 Label elements:

Symbol: None

Signal word: Warning

2.3 Other Hazards

In case of eye contact, it may cause irritation of eyes, redness of mucous membrane, watering.



NikoMag™

Volgograd

Issue date: 25.12.2014

Revision date: 20.02.2017

Magnesium Oxide SDS

Version 1.2. Page 2 of 9

2.3.1 Summary and Overall Conclusions on PBT or vPvB Properties

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

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

2.3.2 Precautionary 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.

3 COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name (according to IUPAC)

Magnesium oxide

Chemical formula

MgO

General composition data:

Magnesium oxide is made by calcining magnesium hydroxide. Magnesium oxide is available in types A, B, C, D, which slightly differ in the chemical activity.

Ingredients

Ingredients:	CAS No.	EC No. (EINECS, EILINCS)	Content, wt. %
Magnesium oxide MgO	1309-48-4	EC 215-171-9	no less than 99

4 FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled:

Fresh air, rest, warm environment, drinking hot tea. Cardiac medications based on medical necessity.

In case of skin contact:

Remove contaminated clothes. Wash skin with running water and soap.

In case of eye contact:

Wash your eyes with plenty of running water.

In case of ingestion:

For accidental swallowing, flush gastrointestinal tract with plenty of water, take saline purgative, activated charcoal.

First aid kit:

Cardiac medications, activated charcoal, saline purgative.

4.2 Most important symptoms and special treatment needed

In case of intoxication by inhalation:

When inhaled, magnesium oxide mist may cause fever, neutrophil leukocytosis, bronchitis, pneumonia, and increased magnesium level in liver and spleen.



NikoMag™

Volgograd

Issue date: 25.12.2014

Revision date: 20.02.2017

Magnesium Oxide SDS

Version 1.2. Page 3 of 9

In case of skin contact:

No symptoms identified.

In case of eye contact:

Irritation of eyes, redness of mucous membrane, watering.

In case of intoxication by ingestion (if swallowed):

Fever, neutrophil leukocytosis. Swallowing can hardly lead to acute poisoning, as intestinal absorption of magnesium is hindered by formation of insoluble salts.

4.3 Indication of the need of immediate medical attention:

Not required

5 FIGHTING MEASURES

5.1 Extinguishing media

The product is non-combustible and non-explosive. Use suitable fire extinguishing media based on the source of ignition.

Unsuitable extinguishing media:

Avoid exposing magnesium oxide to water.

5.2 Specific hazards arising from the substance or mixture

General fire and explosion safety description:

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:

Magnesium oxide is non-combustible and not subject to thermal degradation. The product package, however, may catch on fire.

5.3 Advice for firefighters

Personal protective equipment for fire-fighting:

In case of fire, use common personal protective equipment.

5.4. Firefighting specifics

As the product is nonflammable, choose the appropriate fire extinguishing measures depending on the source of flame. The combustion may involve packing. Water ingress in products not recommended due to potential heat emissions and volume increase.

6 ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

6.1.1 Advice for non-emergency personnel:

Production, storage and laboratory rooms must be equipped with suction and exhaust ventilation plus spot ventilation. Air-tight equipment and lines must be used. For any work related to the product output, use personal protection equipment and protective clothing.

Safety posters with warning signs must be put up in all production rooms.

Production rooms must have primary fire-fighting means (sand, extinguishers).

Workplace air quality must be regularly monitored for harmful substances.



NikoMag™

Volgograd

Issue date: 25.12.2014

Revision date: 20.02.2017

Magnesium Oxide SDS

Version 1.2. Page 4 of 9

6.1.2 Advice for emergency responders:

Persons exposed to the product must be provided with individual protection means: special clothing (cotton fabric suit); safety footwear (safety shoes, rubber boots); hand protection (gauntlets, rubber gloves); respiratory protective devices (respirators); safety goggles.

6.2 Environmental Precautions

Air-tightness of the equipment ensures environmental protection at production, while air-tight containers must be used for shipment and storage.

6.3 Methods and Materials for Containment and Cleaning Up

6.3.1 Spill containment: Give notice to the local supervision agency. Do not touch the spillage. Avoid dusting. Take unaffected product packages away to a safe location if it can be done safely. Put the spilled product in a container and send it for disposal to the facilities approved by the local supervision agency. Wash the vehicles and solid surfaces with water.

6.3.2 Fire-fighting procedure: The product is non-combustible. Use suitable fire extinguishing media in the fire area based on the main source of ignition. Try to avoid water coming onto the product.

6.4 Reference to other sections

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

7 HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Safety Measures and Collective Protective Equipment

Production, storage and laboratory rooms must be equipped with suction and exhaust ventilation plus spot ventilation. Air-tight equipment and lines must be used. For any work related to the product output, use personal protection equipment and protective clothing.

Workplace air quality must be regularly monitored for harmful substances.

7.2 Conditions for Safe Storage, Including Incompatibilities

7.2.1 Safe storage conditions and life:

Magnesium oxide must be kept in air-tight containers on pallets in indoor dry and ventilated storage areas away from humidity and at least one meter away from heating devices. The original marking on the package must be preserved.

Guaranteed shelf life is one year from the date of manufacture.

7.2.2 Incompatible substances and materials:

Do not store together with acids.

7.2.3 Safety measures and storage precautions for domestic use:

The product is not designed for domestic use.

7.2.4 Recommended packaging materials:

Magnesium oxide with net weight up to 50 kg shall be packed in paper or composite bags, in air-tight polyethylene valve bags, polypropylene valve bags with polyethylene lining, laminated polypropylene bags, or other bags according to the applicable regulatory documents.

Magnesium oxide with net weight to 1000 kg shall be packed in soft air-tight containers made of polypropylene fabric type MKR-1000, specially designed for loose and wet products according to the applicable regulatory documents.

7.3 Specific end purpose

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



8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters

8.1.1 Workplace Control Parameters

TLV = 4 mg/m³, aerosol /5/

8.1.2 Engineering Controls to Keep Exposure Within Permissible Limits

Production, storage and laboratory rooms must be equipped with suction and exhaust ventilation plus spot ventilation.

Air-tight equipment and lines must be used.

Workplace air quality must be regularly monitored for magnesium oxide aerosol to be within TLV.

8.2 Exposure Controls

8.2.1 Personal Protection Means for Personnel

General guidelines: Compliance with industrial hygiene regulations.

Respiratory protection: any aerosol filtering type.

Protective clothing (material, type): special clothing (cotton fabric suit); clear lens safety goggles; rubber gloves.

Personal protective equipment for domestic use: Not used.

9 PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Index

a) Description	White powder
b) Odor	No specific odor
c) Odor perception limit	N/A.
d) pH	N/A.
e) Melting/freezing point, °C	2800 ⁰ C
f) Initial boiling point and boiling limits, °C	3600 ⁰ C
g) Flash point	N/A.
h) Evaporation intensity	N/A.
i) Inflammability	Non inflammable
j) Upper/bottom inflammability limits and explosivity limits	N/A.
k) Vapor pressure	Non inflammable
l) Vapor density	Non inflammable
Specific density, g/cm ³	Non inflammable
Tamped density, g/cm ³	0,3-0,5
m) Water solubility at 20 °C, mg/l	Slightly soluble in cold water
n) n-octanol/water distribution coefficient	Non inflammable
o) Self-ignition temperature	Non inflammable
p) Decomposition temperature	Non inflammable
q) Viscosity	Non inflammable
r) Explosive characteristics	fireproof and non-explosive
s) Oxidizing characteristics	non-oxidizing

9.2 Other information

Forms magnesium hydrate when in contact with water, increases in volume and leads to heat emissions.

Can cause ignition of substances with a low ignition point.

Fat insoluble.



10 STABILITY AND REACTIVITY

10.1 Reactivity

The product reacts with acids. Magnesium oxide is hygroscopic; water contact leads to formation of magnesium hydroxide. If kept open, it will absorb CO₂ from air.

10.2 Chemical stability:

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

10.3 Possibility of hazardous reactions:

Reacts with acids.

10.4 Conditions to avoid:

Water contact leads to formation of magnesium hydroxide with an increase in volume and heat release.

10.5 Incompatible materials:

Reacts with oxidizers, acids.

10.6 Hazardous decomposition products:

None.

11 TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

The product dust may irritate upper airways and mucous membrane of an eye. Inhalation of magnesium oxide mist may cause fever, neutrophil leukocytosis, bronchitis, pneumonia.

Exposure routes:

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

Affected organs, tissues and body systems:

Upper airways, lungs, circulatory system, cardiovascular system.

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

The product has an irritant effect on upper airways, eye mucous membranes.

Skin-resorptive action not observed.

Sensitization: not studied.

Information on distant hazardous effects on the body:

Embryotrophic, gonadotrophic, teratogenic, mutagenic and carcinogenic effects (on humans) not studied.

Acute toxicity

Swallowing can hardly lead to acute poisoning, as intestinal absorption of magnesium is hindered by formation of insoluble salts.

Doses (concentrations) having minimum toxic effect:

6 or 4 mg/m³, inhalation, human: metal fume fever symptoms;

4-15 mg/m³, ingestion, human: light laxative effect;

50-116 mg/m³, long-term exposure, human: proneness to peptic ulcer disease;

1.0-8.5 mg/m³, human: permanent catarrh of upper respiratory tract, moderate increase in arterial blood pressure, higher levels of eosinophils and monocytes;

50 mg/m³, intratracheal route, rats, after 3 to 6 months: moderate pulmonary fibrosis.



NikoMag™

Volgograd

Issue date: 25.12.2014

Revision date: 20.02.2017

Magnesium Oxide SDS

Version 1.2. Page 7 of 9

12 ECOLOGICAL INFORMATION

12.1 Toxicity:

12.1.1 Hygienic regulations:

TLV at workplace = 4 mg/m³, aerosol, /1/

TLV in ambient air = 0.4/0.05 mg/m³, resorptive, /1/

MAC in water = 50 mg/l (per Mg), org. flavour, /1/

MAC in fishery = 940 mg/l at salinity 13-18‰ for sea water in terms of Mg in all soluble versions /5/

MAC in soil is unknown /5/

12.1.2 Ecotoxicity indices:

Acute toxicity for fish:

CL100 (per Mg)=1,900 mg/l, Centrarchidae, 24 hours, /5/

Acute toxicity for Daphnia magna:

CL50=32 mg/l, 48 hours, /5/

Mg at 82 mg/l lowers fertility, /5/

Further details:

CL50 for cyclops is 280 mg/l, 48 hours, /5/

12.2 Persistence and degradability

Migration and environmental conversion through biodegradation and other processes (carbonization, hydrolysis, etc.)

12.3 Bioaccumulative potential

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

12.4 Mobility in soil:

The product dust may contaminate atmosphere, soil and water bodies if handling and storage rules are disrespected. Flavour detection threshold in water is 195 mg/l. For most agricultural crops, magnesium content of more than 2.5% is considered excess.

Magnesium oxide may contaminate the environment as a result of improper storage and handling, or in case of emergency. It may cause alkalinization of water, rendering it inhospitable to aquatic life.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects:

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

13 DISPOSAL CONSIDERATIONS

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

13.1 Waste treatment methods:

The production process excludes any waste subject to special transportation or landfilling rules.

Waste water resulting from magnesium oxide production must be recovered into the process or sent to biological treatment plants.

Spills must be collected into a container and sent for removal to the locations approved by the local supervision agencies.

The package used is disposable and subject to removal at the locations approved by the local supervision agencies.

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

See Sections 6-8. Waste handling precautions are the same as for the product itself.

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

Not applicable.



14 TRANSPORTATION INFORMATION

Ground transport (ADR/RID)

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

Air transport (AND)

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

Maritime transport (IMDG)

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

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

15 REGULATORY INFORMATION

15.1. Safety, Health and Environmental Regulations/ legislation specific for the substance or mixture

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

According to Section 10 of Annex V to Regulation (EC) No. 1907/2006, magnesium oxide is exempted from registration.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out for this substance.



NikoMag™

Volgograd

Issue date: 25.12.2014

Revision date: 20.02.2017

Magnesium Oxide SDS

Version 1.2. Page 9 of 9

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.

Brought into conformity with the requirements of 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):

Section denominations: 4.2, 9.2, 15.1

The content of the following sections has been added to: 4.3, 5.4, 6.4, 7.3, 9.2, 14, 15.1

Changed company name to CJSC "NikoMag" on JSC "NikoMag"

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.

Sources of Basic Information

1. Safety Data Sheet for Magnesium Oxide 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. 453/2010 of 20 May 2010 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. Potentially Hazardous Chemical and Biological Material Data Sheet for Magnesium Oxide. State Registration Certificate AT No. 00536 dated 10.07.1995.

Printed 20.02.2017