STYROMAG ®

Steirische Magnesitindustrie GmbH

Voluntary safety information based on the safety data sheet format according to Regulation (EC) No. 1907/2006 (REACH)

Trade name: STYROMAG® F

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

1.1 Identification of the substance:

Name:	Magnesium oxide
Synonyma:	Magnesia, caustic calcined magnesite, caustic calcined magnesia
EINECS No.:	215-171-9
CAS No.:	1309-48-4
REACH No.:	A registration number for this substance does not exist because the substance is exempt from registration according to Regulation (EC) 1907/2006, Annex V, 10.
Molecular weight:	40,3 g/mol
Chemical formula:	MgO
Other Codes:	Switzerland: G-2368, RTECS: OM^3 850000, N° ICSC: 0504

1.2 Relevant uses:

- waste water treatment and flue gas neutralisation
- raw material for chemical industry
- basic material for animal feed
- construction industry: component of oxychloride cement
- manufacturing industry: (rubber, brake linings, ...)

Applications advised against: none

1.3 Company identification:

STYROMAG Steirische Magnesitindustrie GmbH

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2. HAZARDS IDENTIFICATION

2.1 Classification:

Not classified as dangerous substance according to regulation EC 1272/2008

2.2 Labelling elements:

none

2.3 Other hazards:

This substance contains no components considered to be either persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB) at levels of 0.1% or higher.

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Styromag F is a substance consisting mainly of magnesium oxide (no dangerous substance) and several minor constituents.

Name of substance	CAS No.	concentration	OELs	annotations
Magnesium oxide	1309-48-4	86 % typical	10 mg/ m³ inhalable dust	source: German TRGS 900, experts' recommendation

Minor constituents: SiO_2, especially as magnesium silicates; Fe_2O_3; $CaCO_3$; Al_2O_3.

4. FIRST AID MEASURES

4.1 Description of first aid measures:

Eyes:
Rinse eye under running water for 10 minutes, protect unharmed eye. Seek medical attendance.

Skin:
Remove contaminated clothing.
Clean affected skin areas under running water with soap.
In case of very large skin areas in contact with the substance: Seek medical attendance.
Respiratory system:
Bring the harmed person into fresh air (don't forget self-protection!).
In respiratory distress make the person inhale oxygen.
Only in extreme situations might be necessary: In case of loss of consciousness and existing respiration put the person in a stable lateral position.
Always: Seek medical attendance.

Swallowing:
Rinse the mouth, spit out the rinsing liquid.
After massive ingestion: stimulate vomiting.
Seek medical attendance.

4.2 Most important acute and delayed symptoms and effects:
Main ways of action:
acute: irritation of eyes and respiratory system
chronical: persons with professional exposition to MgO dusts have showed slight irritations of eyes and nasal mucosa.
Metabolism and excretion:
Magnesium (essential trace element, physiological concentration ca. 272-420 mg/kg body mass) is stored in the organism predominantly in the bones (ca. 60 %) und in muscle tissue (ca. 29%). As little as ca. 1 % of the total Mg content in the human body is extracellular, 1/3 of which bound to plasma proteins. The remaining 2/3 (in ionized and dif fusible form) seem to be the biologically active part. Excretion happens nearly exclusively with the urine via the kidneys.
In the human organism, Mg takes part in many basic metabolical processes (especially interaction with calcium and phosphate ions). Deviations from the physiological equilibrium state to either side (hyper- or hypomagnesemia) lead to symptoms of illness.

4.3 Indications for medical emergency aid or special treatment:
Indications for doctors:
- Symptomatology of acute intoxication:
Only moderate irritation of mucous membranes of the eyes: slight redness and minor conjunctival irritation are distinguishable.
Dermal contact with the substance is clinically insignificant.
By way of physical/ chemical irritation of mucous membranes, inhalation can, dependent on the dose, give rise to acute irritation bronchitis.
Peroral ingestion of magnesium oxide is harmless; there are no reports on intoxications.

- Indications for first aid by doctors:
Rinse affected eyes (again), ophthalmological examination is recommended.
Clean contaminated skin.

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5. FIRE-FIGHTING MEASURES

Technical and constructive measures:
The substance is not combustible. Measures for fire precaution and explosion protection and prevention have to respect the combustible substances present.

5.1 Extinguishing media:

Choose extinguishing media suitable for the combustible substances present.

5.2 Special hazards originating from the substance:

No special fire hazards, because the substances are not combustible

5.3 Indications for fire-fighting measures:

Choose fire-fighting measures suitable for the combustible substances present.

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6. ACCIDENTAL RELEASE MEASURES

6.1.1 Personal precautions, protective clothing and equipment, and procedures to be applied in case of emergency:
Use dust mask.

6.2 Measures for environmental protection:
Protection of waters:
The substance is low hazardous to waters. If very large quantities are introduced in waters, drainage system or soil, inform the competent authorities.

6.3 Methods and materials for retention and cleaning
Collect mechanically, prevent dust generation.
After that, aerate the place and clean floor and polluted objects.

6.4 Reference to other paragraphs
See paragraphs 7 and 8

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7. HANDLING AND STORAGE

7.1 Precautions for safe handling

workplace - equipment/ aeration:
Install ventilation of workplace.
Install washing facilities near workplace.

Closed equipment:
If the escape of the substance cannot be prevented, it has to be aspirated near the place of escape.
Emission limits have to be obeyed. Waste-air purification has to be used, if necessary.
Containers have to be labelled unambiguously.

Precautions for safe handling:
Do not let containers stay open.
During filling operations and open applications be sure to have sufficient ventilation.
Only fill containers that are unambiguously labelled.
With open handling, prevent dusting.

Cleaning and maintenance:
Avoid dust formation. Dust deposits have to be removed regularly. Use certified industrial vacuum cleaners or suction devices.

7.2 Precautions for safe storage / incompatibilities

Don’t use food containers – danger of confusion!
Containers have to be labelled unambiguously and permanently.
Keep containers tightly closed.
Store in a dry place.
Storage temperature: no limitations.

Storage together with other substances :
Storage class 10 - 13 (no further differentiation, because between storage classes 10 – 13 there are, as regulated by law, no limitations concerning the storage of different substances together.)
Only substances of the same storage class should be stored together. The substance must not be stored together with substances, with which hazardous chemical reactions are possible, see paragraph 10.

7.3 Specific end uses

Basic material for animal feed; neutralisation of waste waters; production of grinding stones; production of industrial floors

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

8.1 Exposure limit values:

TRGS 900 (DE):	**values**
Inhalable dust (general dust limit value – inhalable fraction)	10 mg/m³
Peak limit: factor of surpassing = 2 duration: 15 min, average value; 4 times per shift; interval 1 h category II – substances of resorptive effect	

8.2 Exposure controls

Technical measures:

Separated working areas, dust aspiration at workplaces or other technical measures that keep the dust concentration below the values indicated in paragraph 8.1.

Personal protection:

Skin protection:
Carry appropriate protective garments (apron, overall, laboratory coat etc.)
Respiratory protection:
In exceptional circumstances (e.g. exceedance of limit values) respiratory protection is necessary.
Respiratory protective device: particle filter (P 2 or P 3 according to EN 143).
Eye protection:
Use framed protective glasses with lateral protection.
Hand protection:
Choose hand protection depending on the other substances used.
Workplace hygiene:
Observe usual hygienic measures for the handling of chemical substances, especially clean your hands before breaks and after work and use skin care products after cleaning.
Avoid respiration of dusts.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information concerning basic physical and chemical properties

Physical State: Solid Form: granular Colour: ochre Odour: without odour

Parameter	Value	Method	Comments
Melting point m.p. [°C]:	2800		
Boiling point b.p. [°C]:	3600		
Flammability [°C]:			not applicable
Lower and upper explosion limit:			not applicable
Flash point:			not applicable
Auto-ignition temperature:			not applicable
Decomposition temperature:			not applicable
pH:	10.3		
Kinematic viscosity:			not applicable
Solubility in water (20°C) [mg/l]:	6		
Partition coefficient n-oktanol/water (log-value):			not applicable (inorganic)
Vapour pressure:			not applicable
Density [g/cm³]:	3.58 – 3.65		
Relative vapour density:			not applicable
Particle characteristics:			No data available.

9.2 Other information

Information with regard to physical hazard classes: hazard classes acc. to GHS (physical hazards): not relevant
Other safety characteristics: There is no additional information.

10. STABILITY AND REACTIVITY

10.1 Reactivity:
Reacts strongly exothermally with strong acids.

10.2 Chemical stability:
Unchanged if sealed from air; absorbs water and carbon dioxide from the air.

10.3 Possible hazardous reactions:
The substance reacts heavily with halogenides of nonmetals, e.g. phosphorus pentachloride.

10.4 Conditions to be avoided:
Access of humidity and carbon dioxide

10.5 Incompatible materials:
Contact with metallic aluminium and moisture causes production of hydrogen.

10.6 Hazardous decomposition products:
No hazardous decomposition products are known.

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11. TOXICOLOGICAL INFORMATION

11.1 Toxicological effects:

Acute Toxicity:
According to experiences with humans, MgO dust has a weak irritating effect on the mucous membranes of the eyes and the respiratory system. About a possible irritation of the skin, there are no special data available.
On the basis of available information, the toxicity of inhaled MgO is judged as moderate.
After oral ingestion, the toxicity is low (MgO is orally administered as a therapeutic agent).

Chronical toxicity:
Persons professionally exposed to MgO dust have showed slight irritations of eyes and nasal mucous membranes.

Toxicity for reproduction, mutagenicity, carcinogenicity
Toxicity for reproduction: no data available
Mutagenicity: no data available
Carcinogenicity: no sufficient data available.

Metabolism and excretion

Magnesium is an essential trace element (physiological concentration ca. 272 – 420 mg/kg body weight) and is stored in the organism especially in the bones (ca. 60 %) and in muscle tissue (ca. 29 %).

12. ECOLOGICAL INFORMATION

12.1 Ecotoxicity:

Magnesium compounds are widely spread in nature as rock-forming minerals. Dissolved magnesium salts are typical components of many groundwaters and mineral waters, especially sea water. Magnesium is a plant nutrient, therefore magnesium compounds are used as fertilizers. Negative influences of MgO on the environment can, at the most, arise from its alkaline reaction.

12.2 Mobility in the soil:

MgO is nearly insoluble in water. In the soil, it absorbs water and carbon dioxide and forms magnesium carbonate. Therefore, its Mg mobility in the soil is comparable to that of natural magnesite or dolomite rock.

12.3 Persistence and degradability:

By absorption of water, the product is converted to magnesium hydroxide $Mg(OH)_2$. By absorption of carbon dioxide, this is changed into magnesium carbonate. Magnesium carbonate $MgCO_3$ is a natural rock-forming mineral.

12.4 Bioaccumulative potential:

Magnesium is resorbed by plants, as magnesium is an essential plant nutrient. It is necessary for the formation of chlorophyll.

12.5 Results of PBT and vPvB assessment:

Not classified as PBT or vPvB substance

12.6 Endocrine disrupting properties:

Not listed.

12.7 Other adverse effects

Other adverse effects are not known.

13. DISPOSAL CONSIDERATIONS

The EWC code is 060316. The substance is not a dangerous waste. Disposal has to be done according to the relevant national, international and local regulations.

13.1 Waste treatment:
according to the relevant national, international and local regulations.

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14. TRANSPORT INFORMATION

Surface transport (ADR/RID/GGVSE):
Classification code: 25199090

14.1 UN No:

not listed

14.2 UN denomination:

not listed

14.3 Transport hazard class:

not listed

14.4 Packaging group:

none

14.5 Environmental hazards:

none

14.6 Special provisions for users:

Do not inhale the dust.

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15. REGULATORY INFORMATION

- Not classified as dangerous according to Council Directive 67/548/EEC.
- Not classified as dangerous according to regulation EC 1272/2008.
- Exempted from regulation 1907/2006 (REACHV) according to Annex V, 10.
- Other relevant legislation: 1999/45/EC, 2001/58/EC, 2006/58/EC (30 ATP), 2006/8/EC

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16. OTHER INFORMATION

Indication of changes (revised safety data sheet)
Alignment to regulation:
Restructuring: section 9, section 14

Section	Former entry	Actual entry	Safety relevant
2.1	Classification according to Regulation (EC) No 1272/2008 (CLP): This substance does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.	Classification acc. to GHS: This substance does not meet the criteria for classification.	yes
2.2	Signal word: not required	Signal word: not required	yes
2.3	Other hazards: There is no additional information.	Other hazards: There is no additional information.	yes
2.3		Results of PBT and vPvB assessment: According to the results of its assessment, this substance is not a PBT or a vPvB.	yes

This safety data sheet is based on our current knowledge.
This safety data sheet gives information only with regard to safety requirements.
Certain properties or a specific use of this substance are not ensured even if detailed information is given in this safety data sheet.