SAFETY DATA SHEET
nedMag 99® Magnesium oxide

0. General
Version number: 2.0
Date of issue: 22-10-2012
Supersedes version: Version 1.0 10-11-2008
Based on: REACH Regulation EC 1907/2006 and Commission Regulation EU 453/2010

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

1.1 Product identifier
Medium to dead burned Magnesium oxide briquettes of powder

Product name: nedMag 99® Magnesium oxide briquettes
nedMag 99® Magnesium oxide powder
nedMag 99® Magnesium oxide caustic

Chemical name/synonyms: Magnesium oxide, MgO, Magnesia, Calcined Magnesia, Calcined Magnesium,
Magnesium oxide powder, Magnesium oxide caustic powder

REACH registration number: not applicable, product exempted from REACH registration (Annex V)
CAS-number: 1309-48-4
EC-number: 215-171-9
Index number CLP Annex VI: not classified

1.2 Relevant identified uses of the substance or mixture and uses advised against
Most common uses for nedMag 99® Magnesium oxide are: refractory in iron and steel industry; water
treatment; stack gas scrubbing (neutralizer); reagent in chemical industry.
No uses advised against are identified.

1.3 Details of the supplier of the safety data sheet
Name: NEDMAG INDUSTRIES Mining & Manufacturing B.V.
Address: Billitonweg 1, P.O. Box 241
9640 AE Veendam, the Netherlands
Telephone: +31 598 651 911
Fax: +31 598 651 205
E-mail: sds@nedmag.nl

1.4 Emergency telephone number
UK: NHS Direct for Health Advice and Reassurance, 24 hours a day, 365 days a year
Telephone +44 (0)845 46 47, www.nhsdirect.nhs.uk

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
According to Regulation (EC) No. 1278/2008 (CLP):
Not classified.
According to Directive 67/548/EEC:
Not classified.

Date of issue: 22-10-2012
SAFETY DATA SHEET  
nedMag 99® Magnesium oxide

2.2  Label elements
According to CLP regulation:

GHS hazard pictogram: No pictogram
Signal word: No signal word
Hazard statement: None
Precautionary statements: None

Other labels:
None

2.3  Other hazards
None

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1  Substances

<table>
<thead>
<tr>
<th>Constituent</th>
<th>EC_number</th>
<th>CAS-number</th>
<th>Concentration w/w</th>
<th>Classification Regulation (EC) No. 1278/2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium oxide</td>
<td>215-171-9</td>
<td>1309-48-4</td>
<td>98.5 %</td>
<td>None</td>
</tr>
<tr>
<td>Oxides of silica, iron, aluminium, and calcium</td>
<td></td>
<td></td>
<td>1.5 %</td>
<td>None</td>
</tr>
</tbody>
</table>

Molecular weight: 40.3

SECTION 4: FIRST AID MEASURES

4.1  Description of first aid measures

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

Skin contact: Wash with plenty of soap and water (for at least 10 minutes). Use skin lotion. If skin irritation occurs, get medical advice or attention.

Eye contact: Remove contact lenses. Rinse copiously with water for at least 10-15 minutes. If eye irritation persists, get medical advice and (if needed) medical attention.

Ingestion: Rinse mouth. Do not induce vomiting. In case large quantities have been swallowed, get medical advice.

4.2  Most important symptoms and effects, both acute and delayed

Inhalation: Dust may cause temporary irritation of upper respiratory tract and slight irritation of eyes and nose.

Skin contact: Irritation, drying, chapping

Eye contact: Redness, tearing
Ingestion: If large quantities are swallowed, rarely irritation, nausea and gastrointestinal upset may occur.

SECTION 5: FIREFIGHTING MEASURES

5.1  Extinguishing media
Appropriate extinguishing media: CO\textsubscript{2}, powder or water spray

5.2  Special hazards arising from the substance or the mixture
In principle not combustible, not explosive, not flammable.
However, may ignite in the presence of interhalogens such as chlorine trifluoride (ClF\textsubscript{3}) or bromine pentafluoride (BrF\textsubscript{5}). It may also ignite and explode when heated with sublimed sulfur, magnesium powder or aluminum powder.

5.3  Advise for fire fighters
Protective actions and/or special protective equipment depending on surrounding fire. Use protective clothing and self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1  Personal precautions, protective equipment and emergency procedures – small spills
Individual precaution: Avoid the inhalation of dust by wearing a suitable face mask
Environmental precaution: Do not pour into sewers or rivers
Cleaning precaution: Sweep spilled substance, eliminate waste water in accordance with regulation
Operation to avoid: Contacts with halogens and strong acids

6.2  Personal precautions, protective equipment and emergency procedures – large spills
Environmental precaution: Do not allow to enter waterways or fall on bare soil
Cleanup procedure: Use a shovel to put the spilled material in appropriate containers. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitation system.
SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling
- Avoid any operation leading to the formation of a dust cloud.
- Observe the exposure limit values in accordance with regulation.
- Avoid inhaling dust and fumes when in their presence.
- Avoid ingestion of the product.
- Wash thoroughly every body surface that came into contact with dust after handling.
- Do not eat, drink or smoke when using this product.
- Avoid contact with interhalogens such as chlorine trifluoride (ClF₃) or bromine pentafluoride (BrF₅) and sublimed sulfur, magnesium powder or aluminum powder.
- Clean area frequently to avoid buildup of dust.

7.2 Conditions for safe storage, including any incompatibilities
- Store in a well ventilated place.
- Avoid contact with incompatibles mentioned in Section 10.

7.3 Specific end use(s)
No specific end uses

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC (NL)</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td>MAK (DE)</td>
<td>6 mg/m³ (for fumes)</td>
</tr>
<tr>
<td>OSHA PEL</td>
<td>24 mg/m³ 15 minutes, 4 times (short term exposure for fumes)</td>
</tr>
<tr>
<td>ACGIH TLV</td>
<td>10 mg/m³ TWA (inhalation total particulates) on 8 hour shift</td>
</tr>
<tr>
<td>OES (UK)</td>
<td>16.5 mg/m³ (schedule: 10 minutes)</td>
</tr>
<tr>
<td>4 STEL (UK)</td>
<td>10 mg/m³ Inhalation Respirable, Total, consult local authorities</td>
</tr>
<tr>
<td>France</td>
<td>5 mg/m³ (unknown limit type)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls
- Appropriate Engineering Controls: Use process enclosures, local exhaust ventilation or other engineering controls to keep air-borne levels below recommended exposure limits (see section 8.1).
- Individual protection measures: Do not eat, drink or smoke when handling the substance. In case dust or fumes form when handling the substance, wear protective clothing such as gloves, safety goggles or glasses, respiratory mask and/or face protection.
- Professional protection measures: Wear dust mask P2. Impervious protective gloves are recommended. Use safety glasses with side protection. It is recommended to wear cover clothing and shoes.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance: Briquettes or powder
Colour: Brownish (briquettes)
White (powder)
Odour: Odourless
pH: 10.3 (saturated aqueous solution)
Melting point: 2800 °C
Boiling point: 3582 °C
Flash point: Not applicable
Flammability: Not flammable
Auto-flammability: Not applicable
Explosion hazards: Not explosive
Combustive properties: Not combustible
Vapour pressure: 0kPa at 20°C
Vapour density: Not applicable (not volatile)
Relative density: 3.58 – 3.65 g/cm³
Solubility(ies): 0.006 g/l at 20°C, soluble in dilute acids, insoluble in alcohols, incompatible with strong acids, interhalogens insoluble (<0.1%)
Partition coefficient: Not applicable
n-octanol/water: Not applicable
Viscosity: Not applicable (solid)

9.2 Other information
Not applicable

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity
Magnesium oxide reacts vigorously with halogens and strong acids.

10.2 Chemical stability
Magnesium oxide is unstable under the following conditions: when in contact with atmosphere, humidity and carbon dioxide are adsorbed easily.

10.3 Possibility of hazardous reactions
Magnesium oxide reacts violently with interhalogens, such as Chlorine Trifluoride (ClF₃), Bromine Pentafluoride (BrF₅) or Phosphorus Pentachloride (PCl₅) and produces flame, explosion or incandescence (in the case of PCl₅). It may also ignite and explode when heated with sublimed sulfur, magnesium powder or aluminum powder.

10.4 Conditions to avoid
Avoid incompatible materials mentioned in section 10.5. Avoid moisture, because it reacts with the substance producing heat. Contact with air should also be avoided as much as possible, because the substance absorbs water and carbon dioxide forming magnesium hydroxide and magnesium carbonate respectively.
10.5 Incompatible materials
Interhalogens, sublimed sulfur and magnesium or aluminum powder; reactive with oxidising agents and acids.

10.6 Hazardous decomposition products
No known hazardous decomposition products exist.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

LD₅₀, L(E)C₅₀: Not available
Classification: Magnesium oxide was not classified according to Council Directive 67/548/EEC or Council Regulation 1272/2008/EC

Acute toxicity:
By Oral route: None
By Inhalation: Short-term inhalation of magnesium oxide dust or fume may cause temporary irritation of upper respiratory tract, skin, nose and eyes. No known allergic responses.
By Dermal Route: Not absorbed by intact skin. Intimate contact of naked skin to magnesium oxide dust may cause irritation, drying and chapping.

Chronic toxicity:
- Oral Route, after repeated exposure, man, 800 mg/m³, no observed effect (magnesium oxide).
- Oral Route, after repeated exposure, cattle, target organ: gastro-intestinal system, 1%, irritating effect.
- Inhalation, after repeated exposure, rat, 3 mg/m³, no observed effect.

Eye Irritation: May cause eye irritation.
Germ cell mutagenicity: No known studies. Not considered to be mutagenic in general.
Carcinogenicity: Substance is not classified as carcinogenic under ACGIH, NIOSH, IARC, NTP or OSHA.

11.2 Other information
Alkalinity. Being a mild alkali is mainly the cause for irritation of body tissues.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity
The following points are theoretical conclusions:
- As natural occurring mineral, Magnesium oxide poses little threat to the environment. Spillage however may be dangerous if it comes in contact with incompatible materials see section 10.
- Due to ionic nature however, it is not a candidate for bioaccumulation.
12.2 Persistence and degradability
Magnesium oxide reacts with water to produce Mg(OH)$_2$. The reaction is self-limiting because of the formation of insoluble magnesium hydroxide. No other data concerning degradation are available.

12.3 Bioaccumulation potential
Due to its ionic nature, Magnesium oxide is not a candidate for bioaccumulation in aquatic species.

12.4 Mobility in soil
Not expected based on structure and physicochemical characteristics.

12.5 Results of PBT and vPvB assessment
Magnesium oxide is not classified as PBT or vPvB substance

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of substance in suitable containers in accordance with local, regional, national or international regulation. Do not dispose in waterways.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number: not applicable
14.2 UN proper shipping name: not applicable
14.3 Transport hazard class(es): not applicable
14.4 Packing group: not applicable
14.5 Environmental hazards: not applicable
14.6 Special precautions for users: not applicable
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: not applicable

SECTION 15: REGULATORY INFORMATION


SECTION 16: OTHER INFORMATION

Revision of this safety data sheet
This safety data sheet is fully revised according to the CLP and REACH regulations. This safety data sheet supersedes all previous issues.