1. Identification of the substance/preparation and of the Company/undertaking

1.1 Product identifier

Product name: SODIUM HYDROXIDE
Product code: MI11233
Synonyms: CAUSTIC SODA, SODIUM HYDROXIDE PRILLS
Molecular weight: 49.99 g/mol
REACH registration number: 01-2119457892-27-xxxx

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

Recommended Use: pH modifier
Uses advised against: Consumer use

1.3 Details of the supplier of the safety data sheet

Supplier:
M-I Australia Pty Ltd
ABN: 67 009 214 162
Level 5
256 St. George Tce
Perth
WA 6000
T = +61 08 9440 2900
F = +61 08 9322 3080
+47 51577424
MISDS@slb.com

1.4 Emergency Telephone Number

Emergency telephone - (24 Hour) Australia +61 2801 44558, Asia Pacific +65 3158 1074, China +86 10 5100 3039, Europe +44 (0) 1235 239 670, Middle East and Africa +44 (0) 1235 239 671, New Zealand +64 9929 1483, USA 001 281 561 1600

Denmark: Poison Control Hotline (DK): +45 82 12 12 12
Netherlands: National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to (EC) No. 1272/2008

Health hazards
Skin corrosion/irritation: Category 1 Subcategory 1A
Serious eye damage/eye irritation: Category 1

Environmental hazards: Not classified
Physical Hazards
Substances/mixtures corrosive to metal

| Category 1 |

2.2 Label elements

Signal word
DANGER

Hazard statements
H314 - Causes severe skin burns and eye damage
H290 - May be corrosive to metals

Precautionary Statements - EU (§28, 1272/2008)
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/ physician
P501 - Dispose of contents/container in accordance with local regulations.

Supplementary precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P334 - Immerse in cool water/wrap in wet bandages
P363 - Wash contaminated clothing before reuse
P330 - Absorb spillage to prevent material damage
P234 - Keep only in original container
P406 - Store in corrosive resistant/ container with a resistant inner liner

Contains
Sodium hydroxide

2.3 Other data
Not classified as PBT/vPvB by current EU criteria

Australian statement of hazardous/dangerous nature
Classified as Hazardous according to the criteria of NOHSC.
HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

3. Composition/information on ingredients
3.1 Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>EC-No.</th>
<th>CAS-No</th>
<th>Weight % - range</th>
<th>Classification (67/548)</th>
<th>Classification (Reg. 1272/2008)</th>
<th>REACH registration number</th>
</tr>
</thead>
</table>

3.2 Mixtures

Not Applicable

4. First aid measures

4.1 First-Aid Measures

Inhalation  
Move the exposed person to fresh air at once. If breathing is difficult, (trained personnel should) give oxygen. If not breathing, give artificial respiration. Seek medical attention at once.

Ingestion  
Do NOT induce vomiting. Get immediate medical attention. Rinse mouth. Risk of product entering the lungs on vomiting after ingestion. Never give anything by mouth to an unconscious person.

Skin contact  
Promptly wash contaminated skin with soap or mild detergent and water. Promptly remove clothing if soaked through and wash as above. Burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Chemical burns must be treated by a physician.

Eye contact  
Remove contact lenses. Promptly wash eyes with lots of water while lifting eye lids. Continue to rinse for at least 15 minutes. Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

General advice  
Seek medical attention for all burns, regardless how minor they may seem. The severity of the symptoms described will vary dependant of the concentration and the length of exposure. If adverse symptoms develop, the casualty should be transferred to hospital as soon as possible.

Main symptoms

Inhalation  
Please see Section 11. Toxicological Information for further information.

Ingestion  
Please see Section 11. Toxicological Information for further information.

Skin contact  
Please see Section 11. Toxicological Information for further information.

Eye contact  
Please see Section 11. Toxicological Information for further information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician  
Treat symptomatically.
5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, dry chemical, carbon dioxide (CO₂), or foam.

Extinguishing media which shall not be used for safety reasons
Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Unusual fire and explosion hazards
Dust may form explosive mixture in air.

Hazardous combustion products
Thermal decomposition can lead to release of toxic and corrosive gases/vapors.

5.3 Advice for firefighters

Special protective equipment for fire-fighters
As in any fire, wear self-contained breathing apparatus and full protective gear.

Special Fire-Fighting Procedures
Containers close to fire should be removed immediately or cooled with water.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not get on skin or clothing. Wash thoroughly after handling. Avoid dust formation. Do not breathe dust. Use personal protective equipment. See also section 8.

6.2 Environmental precautions

The product should not be allowed to enter drains, water courses or the soil.

Environmental exposure controls
Avoid release to the environment. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Prevent dust cloud.

Methods for cleaning up
Avoid dust formation. Sweep up and shovel into suitable containers for disposal. Flush area with flooding quantities of water.

6.4 Reference to other sections

See section 13 for more information.

7. Handling and storage

7.1 Precautions for safe handling
Handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not breathe dust. Reacts violently with water.

Hygiene measures
Use good work and personal hygiene practices to avoid exposure When using do not smoke, eat or drink. Wash hands and face before breaks and immediately after handling the product Remove contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures/precautions
Ensure adequate ventilation. Keep airborne concentrations below exposure limits.

Storage precautions
Keep containers tightly closed in a dry, cool and well-ventilated place. Store in original container. Avoid contact with: Metals Acids Protect from moisture Reacts violently with water

Storage class
Corrosive storage.

Packaging material
Use specially constructed containers only

7.3 Specific end uses
See Section 1.2.

8. Exposure controls/personal protection

8.1 Control parameters

Exposure limits
No biological limit allocated

<table>
<thead>
<tr>
<th>Component</th>
<th>EU OEL</th>
<th>Austria</th>
<th>Australia</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>Not determined</td>
<td>4 mg/m³ STEL inhalable fraction, 8x5 min 2 mg/m³ TWA inhalable fraction</td>
<td>2 mg/m³ Peak</td>
<td>2 mg/m³ Ceiling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Malaysia</th>
<th>France</th>
<th>Germany</th>
<th>Hungary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>2 mg/m³ Ceiling</td>
<td>2 mg/m³</td>
<td>Not determined</td>
<td>2 mg/m³ STEL 2 mg/m³ TWA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>New Zealand</th>
<th>Italy</th>
<th>Netherlands</th>
<th>Norway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>2 mg/m³ Ceiling</td>
<td>2 mg/m³ Ceiling</td>
<td>Not determined</td>
<td>2 mg/m³ Ceiling</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Poland</th>
<th>Portugal</th>
<th>Romania</th>
<th>Russia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>1 mg/m³ STEL</td>
<td>2 mg/m³ Ceiling</td>
<td>Not determined</td>
<td>Not determined</td>
</tr>
<tr>
<td></td>
<td>0.5 mg/m³ TWA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Spain</th>
<th>Switzerland</th>
<th>Turkey</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>2 mg/m³ VLA-EC</td>
<td>2 mg/m³ STEL inhalable 15 min 2 mg/m³ MAK inhalable</td>
<td>Not determined</td>
<td>2 mg/m³ STEL</td>
</tr>
</tbody>
</table>
Derived No Effect Level (DNEL)

Long term exposure local effects
Sodium hydroxide
Inhalation 1 mg/m³

8.2 Exposure controls

All chemical Personal Protective Equipment (PPE) should be selected based on an assessment of both the chemical hazard present and the risk of exposure to those hazards. The PPE recommendations below are based on an assessment of the chemical hazards associated with this product. Where this product is used in a mixture with other products or fluids, additional hazards may be created and as such further assessment of risk may be required. The risk of exposure and need of respiratory protection will vary from workplace to workplace and should be assessed by the user in each situation.

Engineering measures to reduce exposure
Ensure adequate ventilation. Mechanical ventilation or local exhaust ventilation is required.

Personal protective equipment

Eye protection
It is good practice to wear goggles when handling any chemical. Tightly fitting safety goggles. Face-shield.

Hand protection
Impervious gloves made of; Butyl, PVC, Neoprene, Frequent change is advisable.

Respiratory protection
In case of insufficient ventilation wear suitable respiratory equipment, Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust), Half mask with a particle filter P2 (European Norm EN 143 = former DIN 3181), At work in confined or poorly ventilated spaces, respiratory protection with air supply must be used.

Skin and body protection
Wear suitable protective clothing, Eye wash and emergency shower must be available at the work place.

Hygiene measures
Wash hands before eating, drinking or smoking, Remove and wash contaminated clothing before re-use.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Pellets</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>
10. Stability and reactivity

10.1 Reactivity


10.2 Chemical stability

Stable under normal temperature conditions and recommended use.

10.3 Possibility of Hazardous Reactions

Hazardous polymerization
Not known.

10.4 Conditions to avoid

Protect from moisture. do not add water directly to the product. It may cause a violent reaction. Avoid dust formation.

10.5 Incompatible materials

Metals. Acids.

10.6 Hazardous decomposition products

See also section 5.2.

11. Toxicological information
11.1 Information on toxicological effects

Acute toxicity

**Product information**
Causes severe skin burns and eye damage.

**Inhalation**
May cause irritation of respiratory tract. Inhaled corrosive substances can lead to a toxic edema of the lungs.

**Eye contact**
Causes serious eye damage.

**Skin contact**
Causes severe skin burns.

**Ingestion**
Causes burns. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Unknown acute toxicity**
Not Applicable.

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>No data available</td>
<td>1350 mg/kg (Rabbit)</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**Sensitization**
This product does not contain any components suspected to be sensitizing.

**Mutagenic effects**
This product does not contain any known or suspected mutagens.

**Carcinogenicity**
This product does not contain any known or suspected carcinogens.

**Reproductive toxicity**
This product does not contain any known or suspected reproductive hazards.

**Routes of exposure**
Skin contact. Inhalation. Eye contact.

**Routes of entry**
Inhalation. Eye contact.

**Specific target organ toxicity**

- **(single exposure)**
  Not classified

- **(repeated exposure)**
  Not classified.

**Aspiration hazard**
No hazard from product as supplied.

12. Ecological information

12.1 Toxicity

The product component(s) are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
Toxicity to algae
See component information below.

Toxicity to fish
See component information below.

Toxicity to daphnia and other aquatic invertebrates
See component information below.

<table>
<thead>
<tr>
<th>Component</th>
<th>Toxicity to fish</th>
<th>Toxicity to algae</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium hydroxide</td>
<td>45.4 mg/L LC50 (Oncorhynchus mykiss) = 96 h</td>
<td>No information available</td>
<td>No information available</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability
No product level data available.

12.3 Bioaccumulative potential
The product does not contain any substances expected to be bioaccumulating.

12.4 Mobility in soil
Mobility
Soluble in water.

12.5 Results of PBT and vPvB assessment
Not classified as PBT/vPvB by current EU criteria.

12.6 Other adverse effects
None known.

13. Disposal considerations

13.1 Waste treatment methods
Waste from residues / unused products
Dispose of in accordance with local regulations.

Contaminated packaging
Empty containers should be taken for local recycling, recovery or waste disposal.
EWC Waste disposal No. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. The following Waste Codes are only suggestions: EWC waste disposal No: 06 02 04

### 14. Transport information

#### 14.1 UN Number

| UN/ID No. (ADR/RID/ADN/ADG) | UN1823 |
| UN No. (IMDG) | UN1823 |
| UN No. (ICAO) | UN1823 |

#### 14.2 Proper shipping name

SODIUM HYDROXIDE, SOLID,

#### 14.3 Hazard class(es)

| ADR/RID/ADN/ADG Hazard class | 8 |
| IMDG Hazard class | 8 |
| ICAO Hazard class/division | 8 |

#### 14.4 Packing group

| ADR/RID/ADN/ADG Packing group | II |
| IMDG Packing group | II |
| ICAO Packing group | II |

#### 14.5 Environmental hazard

No

#### 14.6 Special precautions

| Hazard identification no (ADR) | 80 |
| EmS (IMDG) | F-A, S-B |
| Emergency action code | 2W |
| Tunnel restriction code | (E) |

#### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Please contact MISDS@slb.com for info regarding transport in Bulk.

### 15. Regulatory information

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

- **Germany, Water Endangering Classes (VwVwS)**
  - Water endangering class = 1
Australian Standard for the Uniform Scheduling of Drugs and Poisons

Sodium hydroxide
Schedule 6
Schedule 5

New Zealand hazard classification  Corrosive

HSNO approval no.  HSR001547


This safety data sheet complies with the requirements of Regulation (EC) No. 1272/2008.


Safe Work Australia.

Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).


Dutch Mining Regulations: In accordance with Mining Regulations 9.2 and Chapter 4 of the Working Conditions Decree.

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013 [P.U.(A) 310/2013] (CLASS Regulations)

The Industry Code of Practice on Chemical Classification and Hazard Communication 2014 [P.U. (B) 128/2014] (ICOP)

International inventories

USA (TSCA)  Complies
European Union (EINECS and ELINCS)  Complies
Canada (DSL)  Complies
Philippines (PICCS)  Complies
Japan (ENCS)  Complies
China (IECSC)  Complies
Australia (AICS)  Complies
Korean (KECL)  Complies
New Zealand (NZIoC)  Complies

Contact REACH@miswaco.slb.com for REACH information.

15.2 Chemical Safety Report

No information available
16. Other information

Prepared by
Global Regulatory Compliance - Chemicals (GRC - Chemicals), Catherine Mansell

Supersedes date
17/Jul/2013

Revision date
02/Jun/2015

Version
7

The following sections have been revised:
This SDS have been made in a new database and therefore a new layout. No changes with regard to classification have been made.

Text of R phrases mentioned in Section 3
R35 - Causes severe burns

Full text of H-Statements referred to under sections 2 and 3
H314 - Causes severe skin burns and eye damage
H290 - May be corrosive to metals
H318 - Causes serious eye damage

Disclaimer
The information contained herein is considered in good faith as reliable of the date issued and is based upon on measurements, tests or data derived from supplier’s own study or furnished by others. In providing this SDS information, Supplier makes no express or implied warranties as to the information or product; merchantability or fitness of purpose; any express or implied warranty; or non-infringement of intellectual property rights; and supplier assumes no responsibility for any direct, special or consequential damages, results obtained, or the activities of others. To the maximum extent permitted by law, supplier's warranty obligations and buyer's sole remedies are as stated in separate agreement between the parties.