





## SECTION 4: First aid measures

### 4.1. Description of first aid measures

General	Remove affected person from source of contamination.
Inhalation	Move injured person into fresh air and keep person calm under observation. If uncomfortable: Seek hospital and bring these instructions.
Skin contact	Wash off promptly and flush contaminated skin with water. Promptly remove clothing if soaked through and flush skin with water. Get medical attention if any discomfort continues.
Eye contact	Important! Immediately rinse with water for at least 15 minutes. May cause permanent damage if eye is not immediately irrigated. Make sure to remove any contact lenses from the eyes before rinsing. Immediately transport to hospital or eye specialist. Continue flushing during transport to hospital.
Ingestion	Immediately rinse mouth and drink plenty of water. Call an ambulance. Bring along these instructions. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Do not give victim anything to drink if he is unconscious.
Recommended personal protective equipment for first aid responders	Wear necessary protective equipment. For personal protection, see section 8.

### 4.2. Most important symptoms and effects, both acute and delayed

Acute symptoms and effects	Strongly corrosive. May cause deep tissue damage. Strongly corrosive. Causes severe burns and serious eye damage. Immediate first aid is imperative.
Delayed symptoms and effects	The etching penetrates deeply into the tissue and is first noticed after a while.

### 4.3. Indication of any immediate medical attention and special treatment needed

Other information	In case of unconsciousness, ingestion or eye contact: Immediately call a doctor / ambulance. Show this safety data sheet.
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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media	Carbon dioxide, foam or water spray.
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### 5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	This product is not flammable. During fire, gases hazardous to health may be formed. Water used for fire extinguishing, which has been in contact with the product, may be corrosive.
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### 5.3. Advice for firefighters

Personal protective equipment	Wear necessary protective equipment. For personal protection, see section 8.
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## SECTION 6: Accidental release measures

## 6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Look out! The product is corrosive. Use protective gloves, goggles and suitable protective clothing. In case of inadequate ventilation use suitable respirator. For personal protection, see section 8.
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## 6.2. Environmental precautions

Environmental precautionary measures	Avoid discharge into water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.
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## 6.3. Methods and material for containment and cleaning up

Cleaning method	Dam and absorb spillage with sand, sawdust or other absorbent. Wash contaminated area with water.
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## 6.4. Reference to other sections

# SECTION 7: Handling and storage

## 7.1. Precautions for safe handling

Handling	Avoid spilling, skin and eye contact. Use work methods which minimize spreading of vapours, dust, smoke, aerosols, splashes etc. to the extent technically possible. Do not mix with acidic products.
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## 7.2. Conditions for safe storage, including any incompatibilities

Storage	Corrosive liquid. Store in a cool dry well-ventilated area. Store in original packages as approved by manufacture. Store away from oxidising agents and acid. Protect from freezing. Keep container closed when not in use, securely sealed and protected against physical damage. Inspect regularly for deficiencies such as damage or leaks. Provide a catch-tank in a bunded area. Ensure that storage conditions comply with applicable local and national regulations. For information on the design of the storeroom, reference should be made to Australian Standard AS 3780. The Storage and handling of corrosive substances.
Conditions to avoid	Keep away from acids. Keep away from ammonium salts. Keep away from aluminium, tin, zinc, and galvanised iron. Prevent long contact with glass surfaces

## 7.3. Specific end use(s)

# SECTION 8: Exposure controls / personal protection

## 8.1. Control parameters

Substance	Identification	Value	TWA Year
Sodium hydroxide	CAS No.: 1310-73-2	<b>OEL short term value</b> Value: 2 mg/m <sup>3</sup>	TWA Year: 2011

## DNEL / PNEC

Substance	Sodium hydroxide
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DNEL

**Group:** Professional  
**Route of exposure:** Long term (repeated) - Inhalation - Local effect  
**Value:** 1 mg/m<sup>3</sup>

**Group:** Consumer  
**Route of exposure:** Short term (acute) - Dermal - Local effect  
**Value:** 2%

**Group:** Consumer  
**Route of exposure:** Long term (repeated) - Inhalation - Local effect  
**Value:** 1 mg/m<sup>3</sup>

**Group:** Professional  
**Route of exposure:** Short term (acute) - Dermal - Local effect  
**Value:** 2%

Substance

2-Phosphonobutan-1,2,4-tricarboxylic acid

DNEL

**Group:** Consumer  
**Route of exposure:** Long term (repeated) - Inhalation - Systemic effect  
**Value:** 2,1 mg/kg bw/d

**Group:** Consumer  
**Route of exposure:** Long term (repeated) - Dermal - Systemic effect  
**Value:** 2,1 mg/kg bw/kg

**Group:** Consumer  
**Route of exposure:** Long term (repeated) - Oral - Systemic effect  
**Value:** 2,1 mg/kg bw/d

**Group:** Consumer  
**Route of exposure:** Short term (acute) - Inhalation - Systemic effect  
**Value:** 79 mg/m<sup>3</sup>

**Group:** Consumer  
**Route of exposure:** Short term (acute) - Dermal - Systemic effect  
**Value:** 40 mg/kg bw/day

**Group:** Consumer  
**Route of exposure:** Short term (acute) - Oral - Systemic effect  
**Value:** 65 mg/kg bw/day

**Group:** Worker  
**Route of exposure:** Long term (repeated) - Inhalation - Systemic effect  
**Value:** 15 mg/m<sup>3</sup>

**Group:** Worker  
**Route of exposure:** Long term (repeated) - Dermal - Systemic effect  
**Value:** 4,2 mg/kg bw/day

**Group:** Worker  
**Route of exposure:** Short term (acute) - Inhalation - Systemic effect  
**Value:** 158 mg/m<sup>3</sup>

**Group:** Worker  
**Route of exposure:** Short term (acute) - Dermal - Systemic effect  
**Value:** 80 mg/kg bw/day

PNEC

**Route of exposure:** Sewage treatment plant STP**Value:** 50.4 mg/L**Route of exposure:** Freshwater**Value:** 3,33 mg/L**Route of exposure:** Saltwater**Value:** 0,33 mg/L**Route of exposure:** Water**Value:** 10,42 mg/L**Comments:** Intermittent releases Water**Route of exposure:** Soil**Value:** 0,491 mg/kg soil dw**Route of exposure:** Freshwater sediments**Value:** 1.47 mg/kg sediment dw

## 8.2. Exposure controls

### Precautionary measures to prevent exposure

Appropriate engineering controls

This substance is hazardous and should be used with a local exhaust ventilation system, drawing vapours away from workers' breathing zone. If the engineering controls are not sufficient to maintain concentrations of vapour/mist below the exposure standards, suitable respiratory protection must be worn.

### Eye / face protection

Suitable eye protection

Wear tight-fitting goggles or face shield.

Eye protection, comments

Eye protection devices should conform to relevant regulations.

Eye protection should conform with Australian/New Zealand Standard AS/NZS 1337 - Eye Protectors for Industrial Applications.

### Hand protection

Required properties for hand protection

Wear gloves of impervious materials such as rubber or plastic. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken. Occupational protective gloves should conform to relevant regulations.

Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

### Skin protection

Additional skin protection measures

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

### Respiratory protection

Respiratory protection necessary at

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective

requirements. Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

## Thermal hazards

Thermal hazards See section 5.

## Appropriate environmental exposure control

Environmental exposure controls See section 6.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	Fluid.
Colour	Yellowish.
Odour	No characteristic odour.
Odour limit	Comments: Not relevant.
pH	Status: In delivery state Value: > 13  Status: In aqueous solution Value: ~ 12,5 Comments: 1%
Melting point / melting range	Comments: Not relevant.
Boiling point / boiling range	Comments: Not relevant.
Evaporation rate	Comments: Not relevant.
Explosion limit	Comments: Not relevant.
Vapour pressure	Comments: Not relevant.
Bulk density	Value: 1,25 kg/l
Solubility	Comments: Completely soluble in water.
Partition coefficient: n-octanol/ water	Comments: Not relevant.
Spontaneous combustability	Comments: Not relevant.
Decomposition temperature	Comments: Not relevant.
Viscosity	Value: < 30 mPas. Comments: Not determined.
Explosive properties	Not explosive.
Oxidising properties	Does not meet the criteria for oxidising.

### 9.2. Other information

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reactivity There are no known reactivity hazards associated with this product.

### 10.2. Chemical stability

Stability Stable under normal temperature conditions and recommended use.

### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Reacts violently with strong acids. Reacts strongly with water. Do not add water directly to the product. It may cause a violent reaction. Risk of bumping (splashes).

### 10.4. Conditions to avoid

Conditions to avoid Heating. Extremes of temperatures. Avoid contact with acids.

### 10.5. Incompatible materials

Materials to avoid Strong acids. Acids, oxidising. Alkali-sensitive metals such as aluminium, tin, lead and zinc and alloys with these metals.

### 10.6. Hazardous decomposition products

Hazardous decomposition products In case of fire, toxic gases (CO, CO<sub>2</sub>, NO<sub>x</sub>) may be formed.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Substance 2-Phosphonobutan-1,2,4-tricarboxylic acid

Acute toxicity

**Type of toxicity:** Acute  
**Effect tested:** LD50  
**Route of exposure:** Oral  
**Duration:** -  
**Value:** > 6500 mg/kg  
**Animal test species:** Rat

**Type of toxicity:** Acute  
**Effect tested:** LD50  
**Route of exposure:** Dermal  
**Duration:** -  
**Value:** > 4000 mg/kg  
**Animal test species:** Rat

**Type of toxicity:** Acute  
**Effect tested:** LC50  
**Route of exposure:** Inhalation.  
**Duration:** 4h  
**Value:** > 1979 mg/m<sup>3</sup>



**Animal test species: Rat**

Other toxicological data

Toxicological tests on the product has not been performed.

**Other information regarding health hazards**

Assessment of acute toxicity, classification

No evidence for acute toxicity.

Inhalation

Aerosols may be corrosive. Inhalation may cause: Serious damage to the lining of nose, throat and lungs.

Skin contact

Strongly corrosive. May cause deep tissue damage.

Eye contact

Strongly corrosive. Causes severe burns. Immediate first aid is imperative. May cause permanent damage to the eyes, especially if the product is not washed away IMMEDIATELY.

Ingestion

Strongly corrosive. Even small amounts may be fatal. Symptoms are severe burning pains in mouth, throat and stomach.

Sensitisation

No evidence for respiratory nor skin sensitization.

Mutagenicity

No evidence for germ cell mutagenicity.

Carcinogenicity, other information

No evidence for carcinogenicity.

Reproductive toxicity

No evidence for reproductive toxicity.

Assessment of specific target organ SE, classification

No evidence for STOT-single exposure.

Assessment of specific target organ toxicity RE, classification

No evidence for STOT-repeated exposure.

Assessment of aspiration hazard, classification

No evidence for aspiration hazard.

**Symptoms of exposure**

Comments

No data recorded.

**SECTION 12: Ecological information****12.1. Toxicity**

Substance

Sodium hydroxide

Acute aquatic, fish

**Value:** 125 mg/l  
**Species:** Gambusia Affinis  
**Method:** LC50

Substance

Sodium hydroxide

Acute aquatic, Daphnia

**Value:** 40,4 mg/l  
**Test duration:** 48h  
**Species:** ceriodaphnia sp.  
**Method:** EC50

Ecotoxicity

Large amounts of the product may affect the acidity (pH-factor) in water with possible risk of harmful effects to aquatic organisms.

Aquatic, comments

No data recorded.

## 12.2. Persistence and degradability

Substance	2-Phosphonobutan-1,2,4-tricarboxylic acid
Biodegradability	<b>Value:</b> 30 - 40 % <b>Method:</b> OECD 302B
Persistence and degradability, comments	The product is easily biodegradable.

## 12.3. Bioaccumulative potential

Bioaccumulative potential	The product is not bioaccumulating.
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## 12.4. Mobility in soil

Mobility	The product is water soluble and may spread in water systems.
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## 12.5. Results of PBT and vPvB assessment

## 12.6. Other adverse effects

Environmental details, summation	Do not discharge this material into waterways, drains and sewers.
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## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Specify the appropriate methods of disposal	Do not empty into drains. Dispose of this material, waste, residues and packaging in accordance with local authority requirements.
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## SECTION 14: Transport information

Dangerous goods	Yes
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### 14.1. UN number

ADR / RID / ADN	1719
IMDG	1719
ICAO / IATA	1719
Comments	<p>This material is classified as Dangerous Goods Class 8 Corrosive Substances according to the Australian Code for Transport of Dangerous Goods by Road and Rail (7th edition)</p> <p>Class 8 Dangerous Goods are incompatible in placard load with any of the following:</p> <ul style="list-style-type: none"> <li>-Class 1, Explosives</li> <li>-Division 4.3, Dangerous When Wet Substances</li> <li>-Division 5.1, Oxidising substances</li> <li>-Division 5.2, Organic Peroxides</li> <li>-Class 6, Toxic or Infectious Substances, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids</li> <li>-Class 7, Radioactive Substances</li> </ul> <p>and are incompatible with food and food packaging in any quantity.</p> <p>Strong acids must not be loaded in the same freight container or on the same</p>

vehicle with strong alkalis. Packing Group I and II acids and alkalis should be considered strong.

## 14.2. UN proper shipping name

Proper shipping name english ADR / RID / ADN CAUSTIC ALKALI LIQUID, N.O.S.

ADR / RID / ADN CAUSTIC ALKALI LIQUID, N.O.S.

Technical name / danger releasing substance ADR / RID / ADN Sodiumhydroxide

IMDG CAUSTIC ALKALI LIQUID, N.O.S.

Technical name / danger releasing substance IMDG Sodiumhydroxide

ICAO / IATA CAUSTIC ALKALI LIQUID, N.O.S.

Technical name / danger releasing substance ICAO Sodiumhydroxide

## 14.3. Transport hazard class(es)

ADR / RID / ADN 8

Classification code ADR / RID / ADN C5

IMDG 8

ICAO / IATA 8

## 14.4. Packing group

ADR / RID / ADN II

IMDG II

ICAO / IATA II

Comments HAZCHEM Code: 2R

## 14.5. Environmental hazards

IMDG Marine pollutant No

## 14.6. Special precautions for user

Special safety precautions for user Not relevant.

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

Transport in bulk (yes/no) No

Product name CAUSTIC ALKALI LIQUID, N.O.S.

## Additional information

ADR / RID / ADN hazard label 8

IMDG Hazard label 8

ICAO / IATA Hazard label	8
Additional information	Not relevant.

### ADR / RID - Other information

Tunnel restriction code	E
Transport category	2
Hazard No.	80
RID other applicable information	80

### IMDG / ICAO / IATA Other information

EmS	F-A, S-B
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## SECTION 15: Regulatory information

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

Other label information	<p>Regulatory information</p> <p>Classified as Hazardous according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.</p> <p>Classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).</p> <p>Poisons Schedule</p> <p>S6</p>
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### 15.2. Chemical safety assessment

Chemical safety assessment performed	No
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## SECTION 16: Other information

List of relevant H-phrases (Section 2 and 3)	<p>H290 May be corrosive to metals.</p> <p>H314 Causes severe skin burns and eye damage.</p> <p>H318 Causes serious eye damage.</p> <p>H319 Causes serious eye irritation.</p>
Classification according to Regulation (EC) No 1272/2008 [CLP / GHS]	<p>Skin Corr. 1A; H314</p> <p>Eye Dam. 1; H318</p>
Training advice	No particular training or education is required but the user must be familiar with this SDS. Users must be carefully instructed in the proper work procedure, the dangerous properties of the product and the necessary safety instructions.
Additional information	READY-TO-USE MIXTURE: 0,08-0,5% H314 Causes severe skin burns and eye damage.
Key literature references and sources for data	<p>Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice</p> <p>Standard for the Uniform Scheduling of Medicines and Poisons.</p> <p>Australian Code for the Transport of Dangerous Goods by Road &amp; Rail.</p>

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.  
Workplace exposure standards for airborne contaminants, Safe work Australia.  
American Conference of Industrial Hygienists (ACGIH)  
Global ly Harmonised System of classification and labelling of chemicals.

Information added, deleted or revised

New safety data sheet.

User notes

Contact Person/Point

The company has taken care in compiling this information. No liability is accepted whether direct or indirect from its application since the conditions of final use are outside the Company's control. The end user is obliged to conform to relevant government regulations and/or patent laws applicable in their respective States of Countries.

Version

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Prepared by

ALM

Comments

END OF SDS