

# Safety Data Sheet Caustic Soda Revision 5, Date 05 Feb 2018

#### 1. IDENTIFICATION

Product Name Caustic Soda

Other Names Soda lye; Sodium hydroxide

Uses Food processing aid; Industrial/commercial use: In flotation agents; in pH regulation; as a solvent; in water treatment;

as a photochemical; as a reducing agent; and in hydraulic fracturing. Domestic use: In cleaning/washing agents and

additives; adhesives; and cosmetic use.

Chemical Family No Data Available

 Chemical Formula
 NaOH

 Chemical Name
 Caustic soda

 Product Description
 No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation Location Telephone

Sydney Solvents Pty Ltd Unit 3, 10 Production Place, 02 4722 5060

Jamisontown NSW 2750

sales@sydneysolvents.com.au

# **Emergency Contact Details**

For emergencies only; DO NOT contact these companies for general product advice.

Organisation Location Telephone

Poisons Information Centre Westmead NSW 1800 25 15 25 or 13 11 26

Chemcall Australia 1800 127 406

## 2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Schedule 6

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of

Chemicals (GHS)

Hazard Categories Corrosive to Metals - Category 1

Skin Corrosion/Irritation - Category 1A Serious Eye Damage/Irritation - Category 1

#### **Pictograms**



Signal Word Danger

Hazard Statements H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

AUH071 Corrosive to the respiratory tract

Precautionary Statements Prevention P280 Wear protective gloves/protective clothing/eye protection/face protection.

P260 Do not breathe dusts or mists.

Response P303 + P361 + P353 IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing.

Rinse skin with water/shower.

P310 Immediately call a POISON CENTER or doctor/physician.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P390 Absorb spillage to prevent material damage.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position

comfortable for breathing.

Storage P406 Store in corrosive resistant container with a resistant inner liner.

P405 Store locked up.

Disposal P501 Dispose of contents/container in accordance with local / regional / national /

international regulations.

#### National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods

by Road & Rail (ADG Code)

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

# Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Sodium hydroxide	NaOH	1310-73-2	>=98 %

# 4. FIRST AID MEASURES

# Description of necessary measures according to routes of exposure

Swallowed IF SWALLOWED: Rinse mouth, then drink a glass of water. Do NOT induce vomiting. Immediately call a Poison

Centre or doctor/physician for advice. Never give anything by mouth to an unconscious person.

Eye IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally

lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes. Immediately call a Poison Centre or

doctor/physician for advice.

Skin IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin and hair with running water

for at least 15 minutes. For minor skin contact, avoid spreading material on unaffected skin. Immediately call a Poison

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Centre or doctor/physician for advice. Wash contaminated clothing and shoes before reuse.

Inhaled IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a

Poison Centre or doctor/physician for advice. Apply resuscitation if victim is not breathing - Do not use direct mouthto-mouth method if victim ingested or inhaled the substance; use alternative respiratory method or proper respiratory

device - Administer oxygen if breathing is difficult.

Advice to Doctor Treat symptomatically and supportively. Keep victim calm and warm - Obtain immediate medical care. Ensure that

attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to

protect themselves.

Medical Conditions Aggravated

by Exposure

No information available

#### 5. FIRE FIGHTING MEASURES

General Measures If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is

out. Avoid getting water inside containers

Flammability Conditions Non-combustible; Material itself does not burn.

Extinguishing Media If material is involved in a fire, use extinguishing measures that are appropriate to local circumstances and the

surrounding environment - Do not use water jets.

Fire and Explosion Hazard Risk of violent reaction or explosion! Containers may explode when heated or contaminated with water. The heat

generated by contact with water (heat of dilution) may be sufficient to ignite combustible materials. Contact with

metals may evolve flammable hydrogen gas.

Hazardous Products of

Combustion

Fire or heat will produce irritating, toxic and/or corrosive gases, including oxides of Sodium.

Special Fire Fighting

Instructions

Contain runoff from fire control or dilution water - Runoff may be toxic and/or corrosive and may pollute waterways.

Personal Protective Equipment W

Wear self-contained breathing apparatus (SCBA) and chemical splash suit. Fully-encapsulating, gas-tight suits should

be worn for maximum protection. Structural firefighter's uniform is NOT effective for this material.

Flash Point No Data Available
Lower Explosion Limit No Data Available
Upper Explosion Limit No Data Available
Auto Ignition Temperature No Data Available

Hazchem Code 2W

## 6. ACCIDENTAL RELEASE MEASURES

General Response Procedure Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources. Do not

touch or walk through spilled material. Avoid generating dust. Do not breathe dust and prevent contact with eyes,

skin and clothing.

Clean Up Procedures Collect mechanically (sweep or vacuum up) and seal in suitable, properly labelled containers for disposal (see

SECTION 13). Do NOT get water inside containers.

Containment Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Prevent dust cloud. Cover with dry

earth, sand or other non-combustible material followed by plastic sheet to minimise spreading or contact with rain.

Decontamination The product can be neutralised using highly diluted hydrochloric acid, which should be added very slowly by

specialised personnel wearing the proper protection. NEVER neutralise the solid product.

**Environmental Precautionary** 

Measures

Spillages and decontamination runoff should be prevented from entering drains and watercourses.

Evacuation Criteria Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher

ground. Large spill: Immediately contact Police or Fire Brigade; Consider initial downwind evacuation of areas within

at least 250 m.

Personal Precautionary

Measures

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8). Large spill: Wear SCBA and chemical splash suit. Fully-encapsulating, gas-tight suits should be worn for maximum

protection.

#### 7. HANDLING AND STORAGE

Handling Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure

adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid generating dust. Do not breathe dusts or mists and prevent contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection (see SECTION 8). WARNING! Water reactive - Heat of reaction may be enough to ignite combustible materials. When diluting, always add the product to water - Never add

water to the product.

Storage Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Protect from

moisture/humidity (hygroscopic). Keep away from heat and sources of ignition - No smoking. Keep away from

foodstuffs and incompatible materials (see SECTION 10). Store locked up.

Container Keep only in the original container.

#### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General For Sodium hydroxide (CAS No. 1310-73-2):

Safe Work Australia Exposure Standard: TWA = 2 mg/m3 Peak limitation.
 New Zealand Workplace Exposure Standard: TWA = 2 mg/m3 Ceiling.

- NIOSH REL/OSHA PEL: TWA = 2 mg/m3

- Immediately dangerous to life or health (IDLH) concentration: 10 mg/m3.

Exposure Limits No Data Available

Biological Limits No information available

Engineering Measures Use local exhaust ventilation to prevent the chemical from entering the breathing zone of any worker. Air monitoring is

recommended to ensure control measures in place are working effectively.

Personal Protection Equipment - Respiratory protection: In the case of sodium hydroxide powder emissions, wear respiratory protection.

Recommended: Particulate filter respirator (refer to AS/NZS 1715 & 1716).

- Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical goggles;

Full face shield may be required for supplementary protection.

- Hand protection: Wear protective gloves. Recommended: Elbow length PVC gloves.

- Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended:

Overalls; PVC apron; PVC protective suit may be required if exposure severe.

Special Hazards Precaustions No information available.

Work Hygienic Practices Do not eat, drink or smoke when using this product. Wash hands and face thoroughly after handling. Take off

immediately all contaminated clothing. Wash contaminated clothing before reuse.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Solid

Appearance Flake, pearl, prill, beads, blocks

Odourless

Colour White, translucent

**pH** 14

Vapour Pressure No Data Available
Relative Vapour Density No Data Available

Boiling Point 1,388 °C

Melting Point 323 °C

Freezing Point No Data Available

Solubility Soluble in water (Water reactive)

Specific Gravity 2.13

Flash Point

Auto Ignition Temp

No Data Available

Evaporation Rate

No Data Available

No Data Available

No Data Available

Corrosion Rate No Data Available Decomposition Temperature No Data Available Density 2.13 g/cm3 Specific Heat No Data Available Molecular Weight No Data Available Net Propellant Weight No Data Available Octanol Water Coefficient No Data Available Particle Size No Data Available Partition Coefficient No Data Available Saturated Vapour Concentration No Data Available No Data Available Vapour Temperature Viscosity No Data Available Volatile Percent No Data Available No Data Available

VOC Volume **Additional Characteristics** No information available. Potential for Dust Explosion No information available Fast or Intensely Burning No information available

Characteristics

Flame Propagation or Burning Rate of Solid Materials

No information available.

Non-Flammables That Could Contribute Unusual Hazards to a

The heat generated by contact with water (heat of dilution) may be sufficient to ignite combustible materials.

Properties That May Initiate or Contribute to Fire Intensity

Non-combustible: Material itself does not burn

Reactions That Release Gases

or Vapours

Fire or heat will produce irritating, toxic and/or corrosive gases, including oxides of Sodium.

Release of Invisible Flammable

Vapours and Gases

Contact with metals may evolve flammable hydrogen gas.

### 10. STABILITY AND REACTIVITY

General Information Reacts violently with acid and is corrosive to metals such as aluminium, tin, lead and zinc; This produces a

combustible/explosive gas (hydrogen). Reacts with ammonium salts; This produces ammonia and generates fire hazard. Contact with moisture and water generates heat - Heat of reaction may be enough to ignite combustible

Chemical Stability The substance is stable under normal (and foreseeable) conditions of temperature and pressure during storage and

handling.

Conditions to Avoid Avoid generating dust.

Materials to Avoid Incompatible/reactive with aluminium, tin, zinc and their alloys, copper, lead, etc; acetic acid, allyl chloride, chlorine

trifluoride, chloroform, methylic alcohol, chloronitrotoluene, chlorosulphonic acid, glyoxal, cyanohydrin, hydrochloric acid, hydrofluoric acid, hydroquinone, nitric acid, sulphuric acid and oleum, nitropropane, phosphorous, propiolactone, phosphorous pentoxide, tetrachlorobenzene, tetrahydrofuran, nitromethane and nitroparaffins.

**Hazardous Decomposition** 

**Products** 

Fire or heat will produce irritating, toxic and/or corrosive gases, including oxides of Sodium. Contact with metals may

evolve flammable hydrogen gas.

**Hazardous Polymerisation** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

#### General Information

- Acute toxicity: Corrosive on ingestion; Symptoms include abdominal pain, burns in mouth and throat, burning sensation in the throat and chest, nausea, vomiting, shock or collapse. The substance is not expected to be systemically available and the effects are expected to be due to pH changes.
- Skin corrosion/irritation: Corrosive; Causes severe skin burns. Symptoms include redness, pain, burns, blisters.

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- Eye damage/irritation: Corrosive; Causes serious eye damage. Symptoms include redness, pain, blurred vision,
- Respiratory/skin sensitisation: Based on data obtained in a study with human volunteers the substance has no skin sensitisation potential.
- Germ cell mutagenicity: Both the in vitro and the in vivo genetic toxicity tests indicated no evidence of mutagenic activity.
- Carcinogenicity: Systemic carcinogenicity is not expected to occur because the substance is not expected to be systemically available in the body.
- Reproductive toxicity: The substance is not expected to be systemically available in the body and for this reason it can be stated that the substance will not reach the foetus nor reach male and female reproductive organs.
- STOT (single exposure): Corrosive to the respiratory tract; Symptoms include cough, sore throat, burning sensation, shortness of breath.
- STOT (repeated exposure): The substance is not expected to be systemically available in the body and therefore systemic effects of the substance after repeated exposure are not expected to occur.
- Aspiration toxicity: No information available.

Carcinogen Category

Mono

#### 12. ECOLOGICAL INFORMATION

Ecotoxicity Aquatic toxicity:

- LC50, Fish: All available tests resulted in a range of toxicity values between 35 to 189 mg/l. However, in the majority of these test reports there were no data on pH variation.

- EC50, Crustacea (Ceriodaphnia): 40.4 mg/l (48 h) [based on immobility].

NOEC, Fish/Crustacea: It is not required to conduct this study since the substance dissociates in water and the only
possible effect would result from the pH effect. However, pH will remain within environmentally expected ranges.

Persistence/Degradability

NaOH is a strong alkaline substance that dissociates completely in water to Na+ and OH-. High water solubility and low vapour pressure indicate that NaOH will be found predominantly in aquatic environment. This implies that it will

low vapour pressure indicate that NaOH will be found predominantly in aquatic environment. This implies that it will not adsorb on particulate matter or surfaces. Atmospheric emissions as aerosols are rapidly neutralised by carbon

dioxide and the salts will be washed out by rain.

Mobility High water solubility and mobility. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer

capacity of the soil, OH- will be neutralised in the soil pore water or the pH may increase. There is no direct exposure of soil to NaOH based on the available uses. In addition, no indirect exposure via air is expected as it rapidly

neutralises in air.

Environmental Fate The hazard of the substance for the environment is caused by the hydroxyl ion (pH effect). For this reason the effect

of the substance on the organisms depends on the buffer capacity of the aquatic or terrestrial ecosystem.

Bioaccumulation Potential Considering its high water solubility, NaOH is not expected to bioconcentrate in organisms. In addition, sodium is a

naturally-occurring element that is prevalent in the environment and to which organisms are exposed regularly, for

which they have some capacity to regulate the concentration in the organism.

Environmental Impact No Data Available

## 13. DISPOSAL CONSIDERATIONS

General Information Dispose of contents/container in accordance with local/regional/national regulations.

Special Precautions for Land Fill Any contaminated absorbent products must be treated by an authorised waste manager, along with any used

packaging and residue.

#### 14. TRANSPORT INFORMATION

## Land Transport (Australia)

ADG Code

Proper Shipping Name SODIUM HYDROXIDE, SOLID
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available

EPG 37 Toxic And/Or Corrosive Substances Non-Combustible

 UN Number
 1823

 Hazchem
 2W

 Pack Group
 II

Special Provision No Data Available

#### Sea Transport

IMDG Code

Proper Shipping Name SODIUM HYDROXIDE, SOLID
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available

 UN Number
 1823

 Hazchem
 2W

 Pack Group
 II

Special Provision No Data Available

EMS F-A, S-B Marine Pollutant No

## Air Transport

IATA DGR

Proper Shipping Name SODIUM HYDROXIDE, SOLID
Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available

 UN Number
 1823

 Hazchem
 2W

 Pack Group
 II

Special Provision No Data Available

# National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods

by Road & Rail (ADG Code)

#### 15. REGULATORY INFORMATION

General Information No Data Available
Poisons Schedule (Aust) Schedule 6

# National/Regional Inventories

Australia (AICS) Listed

Canada (DSL) Listed

Canada (NDSL) Not Listed

China (IECSC) Listed

Europe (EINECS) 215-185-5

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Europe (REACh) 01-2119457892-27-

Japan (ENCS/METI) Listed

Korea (KECI) Listed

Malaysia (EHS Register) Listed

New Zealand (NZIoC) Listed

Philippines (PICCS) Listed

Switzerland (Giftliste 1) Not Determined

Switzerland (Inventory of Notified

Substances)

Not Determined

Taiwan (NCSR) Listed
USA (TSCA) Listed

#### 16. OTHER INFORMATION

Related Product Codes

CASODA0300, CASODA1000, CASODA1001, CASODA1002, CASODA1003, CASODA1004, CASODA1005, CASODA1006, CASODA1007, CASODA1008, CASODA1009, CASODA1010, CASODA1011, CASODA1012, CASODA1013, CASODA1014, CASODA1015, CASODA1016, CASODA1017, CASODA1018, CASODA1019, CASODA1020, CASODA1021, CASODA1022, CASODA1023, CASODA1024, CASODA1025, CASODA1026, CASODA1027, CASODA1028, CASODA1029, CASODA1030, CASODA1031, CASODA1032, CASODA1033, CASODA1034, CASODA1035, CASODA1036, CASODA1037, CASODA1038, CASODA1039, CASODA1040, CASODA1041, CASODA1042, CASODA1043, CASODA1044, CASODA1045, CASODA1050, CASODA1100, CASODA1101, CASODA1150, CASODA1200, CASODA1201, CASODA1202, CASODA1203, CASODA1300, CASODA1301, CASODA1302, CASODA1303, CASODA1304, CASODA1305, CASODA1306, CASODA1307, CASODA1308, CASODA1309, CASODA1310, CASODA1311, CASODA1312, CASODA1313, CASODA1314, CASODA1315, CASODA1316, CASODA1317, CASODA1318, CASODA1319, CASODA1320, CASODA1321, CASODA1322, CASODA1323, CASODA1324, CASODA1325, CASODA1326, CASODA1327, CASODA1328, CASODA1329, CASODA1330, CASODA1331, CASODA1332, CASODA1400, CASODA1401, CASODA1402, CASODA1403, CASODA1500, CASODA1600, CASODA1700, CASODA1701, CASODA1750, CASODA1755, CASODA1760, CASODA1765, CASODA1770, CASODA1780, CASODA1785, CASODA1800, CASODA1801, CASODA1802, CASODA1803, CASODA1804, CASODA1805, CASODA1806, CASODA1807, CASODA1808, CASODA1809, CASODA1810, CASODA1811, CASODA1812, CASODA1813, CASODA1814, CASODA1815, CASODA1816, CASODA1817, CASODA1818, CASODA1819, CASODA1820, CASODA1821, CASODA1822, CASODA1823, CASODA1824, CASODA1825, CASODA1826, CASODA1827, CASODA1900, CASODA2000, CASODA2001, CASODA2002, CASODA2003, CASODA2004, CASODA2005, CASODA2100, CASODA2101, CASODA2102, CASODA2103, CASODA2200, CASODA2201, CASODA2202, CASODA2300, CASODA2301, CASODA2302, CASODA2400, CASODA2500, CASODA2501, CASODA2502, CASODA2503, CASODA2504, CASODA2505, CASODA2506, CASODA2600, CASODA2601, CASODA2602, CASODA2603, CASODA2604, CASODA2605, CASODA2606, CASODA2607, CASODA2608, CASODA2609, CASODA2700, CASODA2701, CASODA2702, CASODA2703, CASODA2704, CASODA2800, CASODA2900, CASODA3000, CASODA3001, CASODA3002, CASODA3003, CASODA3004, CASODA3005, CASODA3006, CASODA3007, CASODA3008, CASODA3010, CASODA3011, CASODA3020, CASODA3021, CASODA3030, CASODA3040, CASODA3100, CASODA3101, CASODA3200, CASODA3201, CASODA3300, CASODA3400, CASODA3500, CASODA3501, CASODA3502, CASODA3503, CASODA3504, CASODA3505, CASODA3506, CASODA3600, CASODA3601, CASODA3700, CASODA3800, CASODA3900, CASODA4000, CASODA4001, CASODA4002, CASODA4003, CASODA4004, CASODA4005, CASODA4006, CASODA4200, CASODA4201, CASODA4500, CASODA4501, CASODA4502, CASODA4503, CASODA4504, CASODA4505, CASODA4506, CASODA4507, CASODA4508, CASODA4600, CASODA4601, CASODA5000, CASODA5001, CASODA5002, CASODA5003, CASODA5004, CASODA5005, CASODA5006, CASODA5007, CASODA5008, CASODA5010, CASODA5015, CASODA5050, CASODA5200, CASODA5300, CASODA5301, CASODA5305, CASODA5306, CASODA5307, CASODA5308, CASODA5310, CASODA5500, CASODA5501, CASODA5502, CASODA5503, CASODA5504, CASODA5505, CASODA5506, CASODA5600, CASODA6000, CASODA6001, CASODA6002, CASODA6003, CASODA6010, CASODA6050, CASODA6051, CASODA6500, CASODA6501, CASODA7000, CASODA7100, CASODA7101, CASODA7200, CASODA7300, CASODA7500, CASODA7700, CASODA7701, CASODA7702, CASODA8000, CASODA8100, CASODA8101, CASODA8200, CASODA8201, CASODA8202, CASODA8205, CASODA8210, CASODA8250, CASODA8255, CASODA8300, CASODA8400, CASODA9000, CASODA9100, CASODA9600, CASODI3800

Revision

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Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO2 Carbon Dioxide

COD Chemical Oxygen Demand deg C (°C) Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Farenheit

g Grams

g/cm<sup>3</sup> Grams per Cubic Centimetre

g/I Grams per Litre

HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other.

inHg Inch of Mercury inH2O Inch of Water

**K** Kelvin

kg Kilogram

kg/m<sup>3</sup> Kilograms per Cubic Metre

**lb** Pound

LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

Itr or L Litre m<sup>2</sup> Cubic Metre mbar Millibar mg Milligram

mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m³ Milligrams per Cubic Metre

Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present

mm Millimetre

mmH2O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Heath and Safety Commission OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

**ppb** Parts per Billion **ppm** Parts per Million

ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average ug/24H Micrograms per 24 Hours

**UN** United Nations

wt Weight