



# SAFETY DATA SHEET BISPHENOL A, EPOXY RESIN REVISION 5, DATE 06 JAN 21

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Bisphenol A, Epoxy Resin</b>
<b>Other Names</b>	BE-186 Series; BE-188 Series; bisphenol A, (chloromethyl)oxirane polymer; bisphenol A, epichlorohydrin polymer; epichlorohydrin, bisphenol A resin
<b>Uses</b>	Coating; Thinner, diluent; Paint; Adhesives; Casting, potting, encapsulation for electrical components; Protective coating, laminating and civil engineering. *Uses advised against: Any uses where product/reformulation is classified as skin irritant AND to be used without recommended skin protection or personal protective equipment. Any uses in articles where the residual product is greater than 1,000 ppm.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	(C <sub>15</sub> H <sub>16</sub> O <sub>2</sub> .C <sub>3</sub> H <sub>5</sub> ClO) <sub>x</sub>
<b>Chemical Name</b>	Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane
<b>Product Description</b>	Reaction product: bisphenol-A-(epichlorohydrin) epoxy resin (number average molecular weight <=700).

### Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapis 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

### Emergency Contact Details

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

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887



**2. HAZARD IDENTIFICATION****Poisons Schedule (Aust)**

Schedule 5

**Globally Harmonised System****Hazard Classification**

Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

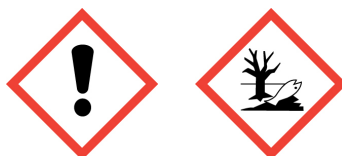
**Hazard Categories**

Skin Corrosion/Irritation - Category 2

Serious Eye Damage/Irritation - Category 2A

Sensitisation (Skin) - Category 1

Long-term Hazard To The Aquatic Environment - Category 2

**Pictograms****Signal Word**

Warning

**Hazard Statements****H315**

Causes skin irritation.

**H317**

May cause an allergic skin reaction.

**H319**

Causes serious eye irritation.

**H411**

Toxic to aquatic life with long lasting effects.

**Precautionary Statements****Prevention****P261**

Avoid breathing dust/fume/gas/mist/vapours/spray.

**P272**

Contaminated work clothing should not be allowed out of the workplace.

**P273**

Avoid release to the environment.

**P280**

Wear protective gloves/eye protection/face protection.

**Response****P302 + P352**

IF ON SKIN: Wash with plenty of water/...

**P305 + P351 + P338**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**P333 + P313**

If skin irritation or rash occurs: Get medical advice/attention.

**P337 + P313**

If eye irritation persists: Get medical advice/attention.

**P362**

Take off contaminated clothing.

**P391**

Collect spillage.

**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 &amp; Rail (ADG Code)

**Dangerous Goods Classification**

Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road &amp; Rail (ADG Code)

**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

**HSNO Classifications**Health Hazards **6.4A**

Substances that are irritating to the eye

	<b>6.5B</b>	Substances that are contact sensitisers
	<b>6.9B</b>	Substances that are harmful to human target organs or systems
Environmental Hazards	<b>9.1B</b>	Substances that are ecotoxic in the aquatic environment

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Bisphenol A (epichlorohydrin) epoxy resin	(C <sub>15</sub> H <sub>16</sub> O <sub>2</sub> .C <sub>3</sub> H <sub>5</sub> ClO) <sub>x</sub>	25068-38-6	100 %

### 4. FIRST AID MEASURES

#### Description of necessary measures according to routes of exposure

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth. Call a Poison Centre or doctor/physician if you feel unwell.
<b>Eye</b>	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 rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
<b>Skin</b>	IF ON SKIN: Remove and isolate contaminated clothing and shoes immediately. Wash skin with plenty of soap and running water. If skin irritation or rash occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
<b>Advice to Doctor</b>	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. *Monitor circulation.
<b>Medical Conditions Aggravated by Exposure</b>	May cause an allergic skin reaction.

### 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Do not inhale explosion gases or combustion gases.
<b>Flammability Conditions</b>	May burn but does not ignite readily.
<b>Extinguishing Media</b>	Use water spray, alcohol-resistant foam, dry powder or Carbon dioxide (CO <sub>2</sub> ) for extinction - Do not use water with full jet.
<b>Fire and Explosion Hazard</b>	Containers may explode when heated.
<b>Hazardous Products of Combustion</b>	Fire may produce irritating and/or toxic fumes, including Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Phenols.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
<b>Personal Protective Equipment</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (including fire fighting helmet, coat, trousers, boots, and gloves).
<b>Flash Point</b>	266 °C (at 1013 hPa)
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available

Hazchem Code

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**6. ACCIDENTAL RELEASE MEASURES**

<b>General Response Procedure</b>	Ensure adequate ventilation. ELIMINATE all ignition sources (no smoking, flares, sparks or flames). Do not touch or walk through spilled material. Avoid contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Pick up with sand or other non-combustible absorbent material and place into containers for later disposal (see SECTION 13).
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas.
<b>Decontamination</b>	No information available.
<b>Environmental Precautionary Measures</b>	Do not allow to enter sewers/surface or ground water. Inform respective authorities in case of seepage into water course or sewage system.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unprotected/unauthorised personnel away. Stay upwind and/or uphill.
<b>Personal Precautionary Measures</b>	Wear protective equipment (see SECTION 8).

**7. HANDLING AND STORAGE**

<b>Handling</b>	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 contact with eyes, skin and clothing. Do not ingest. Wear protective equipment (see SECTION 8). Avoid release to the environment - Collect spillage (see SECTION 6). Protect against electrostatic charges.
<b>Storage</b>	Store in a cool, dry and well-ventilated place. Protect from heat and direct sunlight. Keep container tightly closed. Keep away from foodstuffs, beverages and feed. Keep away from incompatible materials (see SECTION 10).
<b>Container</b>	Keep in the original container.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>General</b>	Contains no substances with occupational exposure limit values.
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
<b>Personal Protection Equipment</b>	<ul style="list-style-type: none"> <li>- Respiratory protection: Wear suitable respiratory protective device. Recommended: In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.</li> <li>- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Tightly sealed goggles; Safety glasses with side shields, or equivalent.</li> <li>- Hand protection: Wear protective gloves. Recommended: The glove material has to be impermeable and resistant to the product/substance/preparation, e.g. Butyl rubber, Nitrile rubber, PVC gloves, Neoprene gloves, Ethyl vinyl alcohol laminate (EVAL).</li> <li>- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Use protective suit. The type of protective equipment must be selected according to the concentration and amount of the hazardous substance(s) at the specific workplace.</li> </ul>
<b>Special Hazards Precautions</b>	No information available.

**Work Hygienic Practices**

Do not eat, drink or smoke when using this product. Immediately remove all soiled and contaminated clothing. Wash hands before breaks and at the end of work. Be sure to clean skin thoroughly after work and before breaks. Ensure that washing facilities are available at the work place.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	Liquid
<b>Appearance</b>	Liquid
<b>Odour</b>	Mild
<b>Colour</b>	Light yellow
<b>pH</b>	No Data Available
<b>Vapour Pressure</b>	4.6 E-8 Pa (@ 25 °C)
<b>Relative Vapour Density</b>	<1 g/cm <sup>3</sup> Air = 1
<b>Boiling Point</b>	320 °C
<b>Melting Point</b>	-16 °C (at 1013 hPa)
<b>Freezing Point</b>	-16 °C
<b>Solubility</b>	6.9 mg/l in water 20°C
<b>Specific Gravity</b>	No Data Available
<b>Flash Point</b>	266 °C (at 1013 hPa)
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	1.16 - 1.18 g/cm <sup>3</sup> [ASTM D 4052]
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	No Data Available
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	LogPow = 3.242
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	25 °C
<b>Viscosity</b>	7,000 - 10,000 cps (BE-186 Series) - 11,000 - 15,000 cps (BE-188 Series) (@ 25 °C)
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	Not applicable.
<b>Fast or Intensely Burning Characteristics</b>	Potentially violent decomposition can occur above 350 °C
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	May burn but does not ignite readily.

Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating and/or toxic fumes, including Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Phenols.
Release of Invisible Flammable Vapours and Gases	No information available.

## 10. STABILITY AND REACTIVITY

General Information	When properly handled and stored, no dangerous reaction is known.
Chemical Stability	This product is stable under prescribed use and storage.
Conditions to Avoid	Avoid temperatures above 300 °C. *Potentially violent decomposition can occur above 350 °C.
Materials to Avoid	Incompatible/reactive with amines, acids, alkalis and oxidising agents.
Hazardous Decomposition Products	Fire/decomposition may produce irritating and/or toxic fumes, including Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Phenols.
Hazardous Polymerisation	Masses of more than one pound (0.5 kg) of product plus an aliphatic amine will cause irreversible polymerisation with considerable heat build-up.

## 11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none"><li>- Acute toxicity: Low acute toxicity based on results from animal tests following oral and dermal exposure.</li><li>- Skin corrosion/irritation: Causes skin irritation. Irritating to the skin (Rabbit) [OECD 404].</li><li>- Eye damage/irritation: Causes serious eye irritation. Irritating to the eye (Rabbit) [OECD 405].</li><li>- Respiratory/skin sensitisation: May cause an allergic skin reaction. Sensitizing to the skin (Mouse, Local Lymph Node Assay) [OECD 429].</li><li>- Germ cell mutagenicity: Not classified, based on available data. Various experiments have shown mixed results (limited mutagenic effects in some while no mutagenic effect in others).</li><li>- Carcinogenicity: Not classified, based on available data.</li><li>- Reproductive toxicity: Not classified, based on available data.</li><li>- STOT (single exposure): Not classified, based on available data.</li><li>- STOT (repeated exposure): Not classified, based on available data.</li><li>- Aspiration toxicity: Not classified, based on available data.</li></ul>
Acute	
Ingestion	Acute toxicity (Oral): - LD50, Rat: >2,000 mg/kg [CAS#25068-38-6].
Other	Acute toxicity (Dermal): - LD50, Rat: >2,000 mg/kg [CAS#25068-38-6].
Carcinogen Category	None

## 12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, fish (semi-static): 1.2 mg/l (96 h) [EPA-660/3-75-009]. - LC50, invertebrate (static): 2.7 mg/l (48 h) [EPA-660/3-75-009]. - EC50, algae (static): 9.4 mg/l (48 h) [EPA-660/3-75-009]. - IC50, microorganism (static): >100 mg/l (3 h). - NOEC, invertebrate (semi-static): 0.3 mg/l (21 d) [OECD 211]. - NOEC, algae (static): 4.2 mg/l (72 h) [EPA-660/3-75-009].
Persistence/Degradability	NOT easily biodegradable. - Degradation: 12 % (28 d) [OECD 302B].

- Rate of hydrolysis: 117 hr @ 25 °C [OECD 211].

**Mobility**

Partition coefficient, soil, organic carbon/water (K<sub>oc</sub>): 445 at 20 °C

**Environmental Fate**

Toxic to aquatic life with long lasting effects. Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground.

**Bioaccumulation Potential**

- Bioconcentration factor (BCF): 31  
- Partition coefficient, n-octanol/water (log Pow): 3.242 @ 25 °C (est.)

**Environmental Impact**

No Data Available

**13. DISPOSAL CONSIDERATIONS****General Information**

Disposal must be made according to official regulations. Must not be disposed together with household garbage. Do not allow product to reach sewer system.

**Special Precautions for Land Fill**

No information available.

**14. TRANSPORT INFORMATION****Land Transport (Australia)**

ADG Code

**Proper Shipping Name**

Bisphenol A Epoxy Resin

**Class**

C2 Combustible Liquids - Flash Point >93°C, Closed Cup, Not Excluded Flammable

**Subsidiary Risk(s)**

No Data Available

**EPG**

47 Low To Moderate Hazard Substances

**UN Number**

No Data Available

**Hazchem**

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**Pack Group**

No Data Available

**Special Provision**

AU01

**Comments**

Not regulated as DG when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs.

**Land Transport (Malaysia)**

ADR Code

**Proper Shipping Name**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Epoxy Resin)

**Class**

9 Miscellaneous Dangerous Goods and Articles

**Subsidiary Risk(s)**

No Data Available

**EPG**

47 Low To Moderate Hazard Substances

**UN Number**

3082

**Hazchem**

3Z

**Pack Group**

III

**Special Provision**

No Data Available

**Land Transport (New Zealand)**

NZS5433

**Proper Shipping Name**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Epoxy Resin)

**Class**

9 Miscellaneous Dangerous Goods and Articles

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<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	47 Low To Moderate Hazard Substances
<b>UN Number</b>	3082
<b>Hazchem</b>	3Z
<b>Pack Group</b>	III
<b>Special Provision</b>	No Data Available

### Land Transport (United States of America)

US DOT

<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Epoxy Resin)
<b>Class</b>	9 Miscellaneous Dangerous Goods and Articles
<b>Subsidiary Risk(s)</b>	No Data Available
<b>ERG</b>	171 Substances (Low to Moderate Hazard)
<b>UN Number</b>	3082
<b>Hazchem</b>	3Z
<b>Pack Group</b>	III
<b>Special Provision</b>	No Data Available

### Sea Transport

IMDG Code

<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Epoxy Resin)
<b>Class</b>	9 Miscellaneous Dangerous Goods and Articles
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	3082
<b>Hazchem</b>	3Z
<b>Pack Group</b>	III
<b>Special Provision</b>	No Data Available
<b>EMS</b>	F-A, S-F
<b>Marine Pollutant</b>	Yes

### Air Transport

IATA DGR

<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol A Epoxy Resin)
<b>Class</b>	9 Miscellaneous Dangerous Goods and Articles
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	3082
<b>Hazchem</b>	3Z
<b>Pack Group</b>	III
<b>Special Provision</b>	No Data Available

### National Transport Commission (Australia)

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

<b>Dangerous Goods Classification</b>	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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**15. REGULATORY INFORMATION**

General Information No Data Available

Poisons Schedule (Aust) Schedule 5

**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR002503  
HSR003180 (Revoked)

**National/Regional Inventories**

Australia (AIIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Listed
Europe (EINECS)	Listed
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Listed
Korea (KECI)	Listed
Malaysia (EHS Register)	Not Determined
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** EPRESI1400, EPRESI1800, EPRESI2101, EPRESI2200, EPRESI2201, EPRESI2202, EPRESI2203, EPRESI2204, EPRESI2205, EPRESI2208, EPRESI2300, EPRESI2400, EPRESI2500, EPRESI2501, EPRESI2502, EPRESI2503, EPRESI2504, EPRESI2505, EPRESI2600, EPRESI2601, EPRESI2700, EPRESI2800, EPRESI2801, EPRESI2802, EPRESI2803, EPRESI2804, EPRESI2805, EPRESI2806, EPRESI3800, EPRESI3801, EPRESI3802, EPRESI8300, EPRESI8301, EPRESI8302, EPRESI8700, EPRESI8800, EPRESI8900, EPRESI8901, EPRESI8902, EPRESI9200, EPRESI9201, EPRESI9202

**Revision** 5

**Revision Date** 06 Jan 2021

**Reason for Issue** updated sds

## Key/Legend

< Less Than  
 > Greater Than  
**AICS** Australian Inventory of Chemical Substances  
**atm** Atmosphere  
**CAS** Chemical Abstracts Service (Registry Number)  
**cm<sup>2</sup>** Square Centimetres  
**CO<sub>2</sub>** 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/l** 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  
**inH<sub>2</sub>O** Inch of Water  
**K** Kelvin  
**kg** Kilogram  
**kg/m<sup>3</sup>** Kilograms per Cubic Metre  
**lb** Pound  
**LC<sub>50</sub>** LC stands for lethal concentration. LC<sub>50</sub> 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.  
**LD<sub>50</sub>** LD stands for Lethal Dose. LD<sub>50</sub> is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.  
**ltr or L** Litre  
**m<sup>3</sup>** Cubic Metre  
**mbar** Millibar  
**mg** Milligram  
**mg/24H** Milligrams per 24 Hours  
**mg/kg** Milligrams per Kilogram  
**mg/m<sup>3</sup>** Milligrams per Cubic Metre  
**Misc or Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.  
**mm** Millimetre  
**mmH<sub>2</sub>O** 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