

## 1. IDENTIFICATION

<b>Product Name</b>	<b>HydroxyPhosphono-Acetic acid (HPA)</b>
<b>Other Names</b>	Acetic acid, 2-hydroxy-2-phosphono-; Glycolic acid, phosphono-; Hydroxy(phosphono)acetic acid; Hydroxyphosphonoacetic acid; XF-331
<b>Uses</b>	Organic corrosion inhibitor; cooling and water systems.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	C2H5O6P
<b>Chemical Name</b>	Acetic acid, hydroxyphosphono-
<b>Product Description</b>	No Data Available

### 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 Sapir 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)

Not Scheduled

# SAFETY DATA SHEET HYDROXYPHOSPHONO-ACETIC ACID (HPA) REVISION 5, DATE 16 OCT 2022

## 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 1B  
Serious Eye Damage/Irritation - Category 1  
Sensitisation (Skin) - Category 1  
Acute Hazard To The Aquatic Environment - Category 3  
Long-term Hazard To The Aquatic Environment - Category 3

### Pictograms



**Signal Word** Danger

**Hazard Statements**

<b>H314</b>	Causes severe skin burns and eye damage.
<b>H317</b>	May cause an allergic skin reaction.
<b>H412</b>	Harmful to aquatic life with long lasting effects.

**Precautionary Statements**

Prevention	<b>P272</b>	Contaminated work clothing should not be allowed out of the workplace.	
	<b>P273</b>	Avoid release to the environment.	
	<b>P280</b>	Wear protective gloves/protective clothing/eye protection/face protection.	
	<b>P260</b>	Do not breathe mist/vapour/spray.	
	Response	<b>P301 + P330 + P331</b>	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		<b>P303 + P361 + P353</b>	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
		<b>P304 + P340</b>	IF INHALED: Remove victim to fresh air and keep comfortable for breathing.
		<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		<b>P310</b>	Immediately call a POISON CENTER or doctor.
		<b>P333 + P313</b>	If skin irritation or rash occurs: Get medical attention.
	<b>P363</b>	Wash contaminated clothing before reuse.	
Storage	<b>P405</b>	Store locked up.	
Disposal	<b>P501</b>	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)

## Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

**HSNO Classifications**

Health Hazards	<b>8.2B</b>	Substances that are corrosive to dermal tissue UN PGII
	<b>8.3A</b>	Substances that are corrosive to ocular tissue

	<b>6.5B</b>	Substances that are contact sensitisers
Environmental Hazards	<b>9.1C</b>	Substances that are harmful in the aquatic environment

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Hydroxyphosphonoacetic acid	C <sub>2</sub> H <sub>5</sub> O <sub>6</sub> P	23783-26-8	48 - 52 %
Water	H <sub>2</sub> O	7732-18-5	Balance %

### 4. FIRST AID MEASURES

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

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth thoroughly with water. Do NOT induce vomiting. Immediately call a Poison Centre or doctor/physician for advice. Never give anything by mouth to an unconscious person.
<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. Immediately call a Poison Centre or doctor/physician for advice.
<b>Skin</b>	IF ON SKIN (or hair): Remove and isolate contaminated clothing and shoes. Immediately flush skin and hair with running water for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice. For minor skin contact, avoid spreading material on unaffected skin. Wash contaminated clothing and shoes before reuse. *Contaminated work clothing should not be allowed out of the workplace.
<b>Inhaled</b>	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. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. 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. Keep victim calm and warm. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
<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. Dike fire-control water for later disposal; do not scatter the material.
<b>Flammability Conditions</b>	Non-combustible; Material does not burn; however, following evaporation of aqueous component, residual material can burn if ignited.
<b>Extinguishing Media</b>	If material is involved in a fire, use dry chemical, Carbon dioxide (CO <sub>2</sub> ), foam or water spray for extinction.
<b>Fire and Explosion Hazard</b>	When heated, vapours may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards! Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated.
<b>Hazardous Products of Combustion</b>	Fire or heat may produce irritating, corrosive and/or toxic gases, including Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), phosphorus oxides (P <sub>x</sub> O <sub>y</sub> ).
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may be corrosive and/or toxic and cause pollution.
<b>Personal Protective Equipment</b>	Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing - It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations

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ONLY; it is not effective in spill situations where direct contact with the substance is possible.

<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	2X

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not breathe vapours and prevent contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material with dry earth, sand or other non-combustible material and transfer to containers for disposal (see SECTION 13).
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, sewers, basements or confined areas. Contain large spills with dikes.
<b>Decontamination</b>	Neutralise washings with soda ash or lime. Flush spill area with water. *Equipment should be thoroughly decontaminated after use.
<b>Environmental Precautionary Measures</b>	Spillages and decontamination runoff should be prevented from entering drains and watercourses.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
<b>Personal Precautionary Measures</b>	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8). *Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.

## 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. Do not breathe mist/vapours/spray and prevent contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection (see SECTION 8). Do not expose to extreme temperatures. Keep away from sources of ignition - No smoking. Avoid release to the environment.
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Storage temperature >0 °C. Keep container tightly closed. Protect from freezing - Do not expose to extreme temperatures. Keep away from sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10). Store locked up.
<b>Container</b>	Keep in the original container or qualified materials, i.e. glass lining, PVC, polypropylene, glass reinforced plastic or polyethylene. Do NOT store in mild steel, aluminium or any other metals. *Containers will enclose product residues and vapours after being emptied - Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	No specific exposure standards are available for this product.
<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.

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<b>Personal Protection Equipment</b>	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: Organic vapour/particulate filter (type A/P) respirator (refer to AS/NZS 1715 & 1716). If used, full facepiece replaces the need for face shield and/or chemical goggles. - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Wear chemical goggles. - Hand protection: Wear protective gloves. Recommended: Wear chemical resistant gloves. - Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Overalls, safety shoes.
<b>Special Hazards Precautions</b>	No information available.
<b>Work Hygienic Practices</b>	Do not eat, drink or smoke when using this product. Wash contaminated skin thoroughly after handling. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Clear liquid
<b>Odour</b>	Slight acrid
<b>Colour</b>	Dark brown
<b>pH</b>	<=3.0 (1% solution @ 25°C)
<b>Vapour Pressure</b>	No Data Available
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	100 - 103 °C
<b>Melting Point</b>	No Data Available
<b>Freezing Point</b>	-5 °C
<b>Solubility</b>	Completely miscible with water
<b>Specific Gravity</b>	>=1.30 (Water = 1)
<b>Flash Point</b>	No Data Available
<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>	No Data Available
<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>	No Data Available
<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>	No Data Available
<b>Viscosity</b>	12 - 30 mPa.s (@ 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.

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<b>Fast or Intensely Burning Characteristics</b>	No information available.
<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>	Non-combustible; Material does not burn; however, following evaporation of aqueous component, residual material can burn if ignited.
<b>Reactions That Release Gases or Vapours</b>	Fire or heat may produce irritating, corrosive and/or toxic gases, including Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), phosphorus oxides (P <sub>x</sub> O <sub>y</sub> ).
<b>Release of Invisible Flammable Vapours and Gases</b>	When heated, vapours may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards!

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	No information available.
<b>Chemical Stability</b>	Stable under normal temperatures and pressures.
<b>Conditions to Avoid</b>	Do not expose to extreme temperatures. Keep away from sources of ignition.
<b>Materials to Avoid</b>	Incompatible/reactive with strong alkalis, nitrites, sulfites, oxidising agents.
<b>Hazardous Decomposition Products</b>	Fire or heat may produce irritating, corrosive and/or toxic gases, including Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), phosphorus oxides (P <sub>x</sub> O <sub>y</sub> ).
<b>Hazardous Polymerisation</b>	Hazardous polymerisation does not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	<ul style="list-style-type: none"><li>- Acute toxicity: May be harmful if swallowed.</li><li>- Skin corrosion/irritation: Causes severe skin burns and eye damage.</li><li>- Eye damage/irritation: Causes serious eye damage.</li><li>- Respiratory/skin sensitisation: May cause an allergic skin reaction.</li><li>- Germ cell mutagenicity: No genetic effects were noted in standard bacterial tests.</li><li>- Carcinogenicity: No information available.</li><li>- Reproductive toxicity: No adverse effects reported in repeat dose studies.</li><li>- STOT (single exposure): No information available.</li><li>- STOT (repeated exposure): No information available.</li><li>- Aspiration toxicity: No information available.</li></ul>
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### Acute

<b>Ingestion</b>	Acute toxicity (Oral): - LD50, Rats: 2,754 mg/kg [Supplier's SDS].
<b>Carcinogen Category</b>	None

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	Aquatic toxicity: - LC50, Fish: 380 mg/L (96 h). - EC50, Invertebrates (Daphnia magna): >140 mg/L (48 h). - EC50, Algae: 30 mg/L (72 h).
<b>Persistence/Degradability</b>	Not readily biodegradable.

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<b>Mobility</b>	Accidental spillage may lead to penetration in the soil and groundwater. However, there is no evidence that this would cause adverse ecological effects.
<b>Environmental Fate</b>	Harmful to aquatic life with long-lasting effects. Prevent entry into drains and waterways.
<b>Bioaccumulation Potential</b>	There is no evidence to suggest bioaccumulation will occur.
<b>Environmental Impact</b>	No Data Available

## 13. DISPOSAL CONSIDERATIONS

<b>General Information</b>	Dispose of contents/container as hazardous waste and in accordance with local/regional/national regulations.
<b>Special Precautions for Land Fill</b>	Warning: Emptied containers retain vapour and product residue. Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed. The reuse of this material's container for non-industrial purposes is prohibited and any reuse must be in consideration of data provided in this SDS.

## 14. TRANSPORT INFORMATION

### Land Transport (Australia)

ADG Code

<b>Proper Shipping Name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HydroxyPhosphono-Acetic acid)
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	37 Toxic And/Or Corrosive Substances Non-Combustible
<b>UN Number</b>	3265
<b>Hazchem</b>	2X
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

### Land Transport (Malaysia)

ADR Code

<b>Proper Shipping Name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HydroxyPhosphono-Acetic acid)
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	37 Toxic And/Or Corrosive Substances Non-Combustible
<b>UN Number</b>	3265
<b>Hazchem</b>	2X
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

### Land Transport (New Zealand)

NZS5433

<b>Proper Shipping Name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HydroxyPhosphono-Acetic acid)
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	37 Toxic And/Or Corrosive Substances Non-Combustible

# SAFETY DATA SHEET HYDROXYPHOSPHONO-ACETIC ACID (HPA) REVISION 5, DATE 16 OCT 2022

<b>UN Number</b>	3265
<b>Hazchem</b>	2X
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

## Land Transport (United States of America)

US DOT

<b>Proper Shipping Name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HydroxyPhosphono-Acetic acid)
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>ERG</b>	153 Substances - Toxic and/or Corrosive (Combustible)
<b>UN Number</b>	3265
<b>Hazchem</b>	2X
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

## Sea Transport

IMDG Code

<b>Proper Shipping Name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HydroxyPhosphono-Acetic acid)
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	3265
<b>Hazchem</b>	2X
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available
<b>EMS</b>	F-A, S-B
<b>Marine Pollutant</b>	No

## Air Transport

IATA DGR

<b>Proper Shipping Name</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HydroxyPhosphono-Acetic acid)
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	3265
<b>Hazchem</b>	2X
<b>Pack Group</b>	II
<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



# SAFETY DATA SHEET HYDROXYPHOSPHONO-ACETIC ACID (HPA) REVISION 5, DATE 16 OCT 2022

General Information	No Data Available
Poisons Schedule (Aust)	Not Scheduled

## Environmental Protection Authority (New Zealand) Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR002547

### National/Regional Inventories

Australia (AIIIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Listed
Europe (EINECS)	405-710-8
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Listed
Korea (KECI)	KE-20820
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	PHACAC1000, PHACAC1001, PHACAC2200, PHACAC2220
Revision	5
Revision Date	16 Oct 2022
Reason for Issue	SDS updated
Key/Legend	< Less Than > Greater Than <b>AICS</b> Australian Inventory of Chemical Substances <b>atm</b> Atmosphere <b>CAS</b> Chemical Abstracts Service (Registry Number) <b>cm<sup>2</sup></b> Square Centimetres <b>CO<sub>2</sub></b> Carbon Dioxide <b>COD</b> Chemical Oxygen Demand

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**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

**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.

**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 Health 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