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**GHS
Classification**

Classified as a 6.8B - A substance that is a suspected human reproductive or developmental toxicant
Classified as a 6.9A - A substance that is toxic to human target organs or systems
Classified as a 9.3C - A substance that is harmful to terrestrial vertebrates

2.1 GHS Classification

Flammable Liquids (Category B)
Acute toxicity, Oral (Category C)
Acute toxicity, Inhalation (Category C)
Acute toxicity, Dermal (Category C)
Skin irritation (Category A)
Eye irritation (Category A)
Specific Target Organ Toxicity (Category A)

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word **Danger**

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H370 Causes damage to organs.

Precautionary statement(s)

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated

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P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

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

	<p>position comfortable for breathing.</p> <p>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P307 + P311 IF exposed: Call a POISON CENTER or doctor/ physician.</p> <p>P322 Specific measures (see supplemental first aid instructions on this label).</p> <p>P330 Rinse mouth.</p> <p>P332 + P313 If skin irritation occurs: Get medical advice/ attention.</p> <p>P337 + P313 If eye irritation persists: Get medical advice/ attention.</p> <p>P361 Remove/ Take off immediately all contaminated clothing.</p> <p>P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.</p> <p>Storage</p> <p>P403 + P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P403 + P235 Store in a well-ventilated place. Keep cool.</p> <p>P405 Store locked up.</p> <p>Disposal</p> <p>P501 Dispose of contents/ container to an approved waste disposal plant.</p>
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Section 3		Composition/Information on ingredients		
	Chemical Characterization	Liquid		
	Ingredients	name	CAS number	%
		Methanol	67-56-1	40%
		Chloroform	67-66-3	60%

Section 4		First Aid Measures
1	Inhalation	Remove the source of contamination or move the victim to fresh air. Ensure airways are clear and have qualified person give oxygen through a face mask if breathing is difficult. SEEK IMMEDIATE MEDICAL ATTENTION
1.1	Inhalation	Remove from exposure, rest and keep warm. In severe cases obtain medical attention
2	Ingestion	If swallowed. And if more than 15 minutes from a hospital, induce vomiting. Preferably using Ipecac Syrup, APF*. SEEK IMMEDIATE MEDICAL ATTENTION.
2.1	Ingestion	Wash out mouth thoroughly with water and give plenty of water to drink. OBTAIN MEDICAL ATTENTION. Contact a doctor or poisons information centre.
2.2	Ingestion	Never give anything by mouth if victim is semiconscious or unconscious. If swallowed, do not induce vomiting. Immediately wash out mouth with water. Seek IMMEDIATE medical attention.
3	Skin	Remove all contaminated clothing. Wash gently and thoroughly with water. Ensure contaminated clothing is washed before re-use or discarded. In severe cases seek medical attention.

3.1	Skin	Remove all contaminated clothing. Wash off skin thoroughly with water and non-abrasive soap for 15 minutes. Ensure contaminated clothing is washed before re-use or discarded. If irritation develops and persists, seek medical attention.
4	Eye	If contact with the eyes occurs, wash with copious amounts of water holding the eyelids open. If irritation develops and persists, seek medical attention.
5	First Aid facilities	Safety showers, eye-wash fountains and normal wash room facilities
6	Advice to Doctor	Treat Symptomatically
7	Other information	For advice, contact New Zealand 0800 POISON/0800 764 766 or a doctor at once

Section 5		Fire Fighting Measures
1	Suitable Extinguishing media	Water fog
		Water spray
		Foam
		Carbon dioxide
		Dry Chemical Powder
2	Specific methods	Wear self-contained Breathing apparatus (SCBA) and full protective clothing to prevent exposure to irritant and toxic fumes and vapours
3	Specific hazards	Not combustible, however, in a fire situation , heating can cause expansion and decomposition leading to the violent rupture of containers.
	Hazards from Combustion Products	Under fire conditions, this product may emit toxic and/or irritating fumes including carbon monoxide and carbon dioxide.
4	Hazchem code	2Z
4	Hazchem code	2WE

Section 6		Accidental Release Measures
	<u>Emergency Procedures</u>	
1	Increase ventilation.	
1.1	Evacuate unnecessary people from the area.	
2	Wear self-contained Breathing apparatus (SCBA)	
3	Wear full protective clothing to prevent exposure to irritant and toxic fumes and vapours.	
4	Cover substance with an inert absorbent material such as vermiculite, sand and or soil.	
5	Place waste into a suitable labelled container(s), mop up residue and place into the same containers for disposal.	
6	If the spilled material enters waterways, contact the Environmental protection Authority or your local waste management authority.	
F1	Shut off all sources of ignition	
	If local regulations permit, mop up with plenty of water and run to waste, diluting greatly with running water. Otherwise absorb on an inert absorbent. Transfer to container and arrange removal by disposal company. For large spillages liquids should be contained with sand or earth and both liquids and solids transferred to salvage containers. Any residues should be treated as for small spillages.	

Section 7		Handling and Storage
	<u>Precautions for safe handling</u>	
1	Avoid contact with skin and eyes.	
2	Use in a well ventilated area/Ensure ventilation is adequate.	

3	Keep containers closed when not in use.
4	Wear protective equipment and clothing.
5	Maintain high standards of personal Hygiene; wash hands prior to eating, drinking, smoking, or using the toilet facilities.
6	Wash promptly if the product contacts the skin, speed in removal from the skin is critical
F1	Take precautions against static discharge. All electrical equipment must be flame proofed.
	<u>Conditions for safe storage</u>
1	Store in a cool dry place out of direct sunlight.
2	Ensure storage is well ventilated.
3	Regularly check containers for leakage.
F1	Store small containers in suitable liquid storage cabinets when not in use. Larger drums (200L) must be kept in purpose built stores.
	<u>Corrosiveness</u>
1	Not corrosive to aluminium.

Section 8	Exposure Controls, Personal Protection
1	<u>National Exposure standards</u>
	The following exposure standards have been established for the material by the occupational Safety and Health Service (OSH) of the New Zealand Department of Labour and the Australian National Occupational Health & safety commission (NOSH). New Zealand Occupational Safety and Health Service Workplace Exposure Standards (OSH): Chloroform TWA 2ppm, 9.9mg/m³ Ethanol TWA 532mg/m³ Australian national Occupational Health and Safety Commission (NOHSC) exposure Standards: Chloroform TWA 2 ppm, 10mg/m³ (Sk)
	TWA = Time weighted average ; - the average airborne concentration of a particular substance when calculated over a normal eight hour working day, for a five day week
	Sk notice:- Absorption through the skin may be a significant source of exposure. The exposure standard is invalidated if such contact should occur.
2	<u>Engineering Controls</u>
	Good ventilation should be used (typically a flow rate of ten room volumes of air per hour is considered good general ventilation. Ventilation rates should be matched to conditions of use. Ensure ventilation is adequate to maintain air concentrations below exposure standards. If local exhaust ventilation is used, ensure sufficient air is replaced to compensate the air that has been removed. Vapour is heavier than air and will tend to accumulate in hollows or sumps. Do not enter confined spaces where vapours may have collected.
3	<u>Respiratory protection</u>
	If engineering controls are not effective in controlling airborne exposure ,then an approved respirator with a replaceable organic vapour filter should be used. Reference should be made to Australian/New Zealand 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
4	<u>Eye Protection</u>
	Safety glasses with side shields or chemical goggles should be worn. Final choice of appropriate eye/face protection will vary according to individual circumstances. Eye protection devices should conform with Australian/New Zealand standard AS/NZS 1337 – eye protectors for industrial Applications.
5	<u>Hand Protection</u>
	Wear laminated film, polyvinyl alcohol (PVA) or other suitable gloves conforming to AS/NZS 2161: Occupational protective gloves.
6	<u>Body Protection</u>
	Suitable protective work gear, eg cotton overall buttoned at neck and wrist. When large quantities are

handled the use of plastic aprons and rubber boots is required.

Section 9		Physical and Chemical Properties
Form	Liquid	
Appearance	Colourless, clear liquid with pleasant sweet odour	
Melting point	-63.5 deg C	
Boiling Point	61-20 deg C	
Solubility in water	Insoluble	
Solubility in organic solvents	Miscible with alcohol, benzene, ether, acetone, carbon tetrachloride, carbon disulfide, petroleum ether, oils.	
Specific gravity	1.483 at 20 deg C	
Vapour pressure	160mm Hg at 20 deg C; 246mm Hg at 30 deg C	
Vapour density	(Air = 1) 4.12	
Evaporation rate	(Butyl acetate = 1) 11.6	
Flash point	Not flammable	
Flammability	Non-combustible liquid	
Auto-ignition Temp.	Above 1000 deg c	
Flammable limits – lower	Not applicable	
Flammable limits – upper	Not applicable	
Molecular Weight	119.39	
Other information	halogenated aliphatic hydrocarbon	

Section 10	Stability and Reactivity
1	<u>Chemical stability</u>
	Stable under normal conditions
2	<u>Incompatible materials</u>
	Strong bases, ketones, alkali metals, aluminium and strong oxidising materials.
	<u>Hazardous decomposition products</u>
	Not combustible, however it decomposes rapidly when in contact with flame or hot surface yielding toxic decomposition products containing hydrochloric acid and phosgene.
3	<u>Hazardous reactions</u>
	Strong bases (eg sodium hydroxide) – normally react slowly due to low solubility of base in chloroform. If methanol (or other co-solvent) is present, reaction may be explosive.
	Ketones- (eg acetone) plus strong base – violent or explosive reaction may occur
	Alkali metals (eg sodium or lithium) – may react vigorously or explosively
	Aluminium – May react vigorously or explosively.
	Strong oxidising materials (eg chromic acid) – Reaction yields phosgene and chlorine.
4	<u>Hazardous polymerisation</u>
	Will not occur

Section 11	Toxicological Information	
1	<u>Toxicology Information</u>	
	Oral lowest lethal dose (Human)	140 mg/Kg
	Inhalation LCLo (Human)	25000ppm/5min
	Oral LD50 (rat) (from various studies)	300-2000mg/Kg
	Inhalation LC50 (rat)	47702 mg/m3/4hr
	Human exposure 25-35 ppm has produced symptoms including lassitude	
2	<u>Inhalation</u>	
	Harmful if inhaled	

	Vapours may irritate the mucous membranes and upper respiratory tract
	Symptoms may include:- <p style="text-align: center;">dizziness, mental dullness nausea disorientation headache.</p>
	High concentrations can cause: vomiting, drowsiness, central nervous system depression and cardiac arrhythmia.
3	<u>Ingestion</u>
	Harmful if swallowed. May cause irritation to the mouth, oesophagus and stomach.
	Symptoms may include: <p style="text-align: center;">Vomiting Nausea Burning of the gastrointestinal tract</p> Acute exposure via any route may lead to kidney and liver failure
4	<u>Skin</u>
	Will cause irritation in contact with the skin resulting in: <p style="text-align: center;">Redness Itching Possible transient dermatitis</p>
	Can be absorbed through the skin with resulting adverse systemic effects
5	<u>Eye</u>
	May cause irritation in contact with the eyes, resulting in redness and lachrymation.
6	<u>Chronic effects</u>
	Harmful: Danger of serious damage to health by prolonged inhalation and if swallowed. Category 3 Carcinogen- substance suspected of having carcinogenic potential Carcinogenic potential – possible liver and kidney disorders
7	<u>Carcinogenicity</u>
	Chloroform is classified as Carcinogen category 3 by the Australian National Occupational Health and Safety Commission (NOHSC).
	Chloroform is classified as an A3 carcinogen by the occupational Safety and health Service (OSH) of the New Zealand Department of Labour

Section 12		Ecological Information
	Ecotoxicity	Not available
	Persistence/Degradability	Not available
	Mobility	Not available
	Bioaccumulative Potential	Not available

Section 13		Disposal Considerations
		<u>Disposal considerations</u>
		Disposal of the spilled or waste product must be done in accordance with the applicable local and national regulations.

Section 14		Transport Information
1	<u>Transport Information</u>	

Australia		
This material is classified according to the Australian Code for the transport of Dangerous Goods as:-	Dangerous goods 6.1	
DG Class 6.1 Toxic substances are incompatible in a placard load with any of the following:		
Class 1	Explosives	
Class 3 if the dangerous goods are nitromethane.	Nitromethane	
Class 5.1 if the class 6 dangerous goods are fire risk substances		
Class 5.2 If the Class 6 dangerous Goods are fire risk substances		
Class 8, if the class 6 Dangerous goods are cyanides and the class 8 dangerous goods are acids.		
Food and food packaging in any quantity		
New Zealand		
This material is classified according to NZS5433:1999 Transport of Dangerous Goods on land as :-	Class 6.1 Toxic Substance	
It must not be loaded with:		
Explosives	Class 1	
Food and food packaging		
<p>Note 1 Cyanides must not be loaded in the same freight container or on the same vehicle as with Class 8 acids. Must not be loaded with in the same freight container; and on the same vehicle ,must be separated by at least3 metres unless all but one are packed in separate containers with:</p> <p style="padding-left: 40px;">Class 5.1 – Oxidising substances Class 5.2 – organic peroxides</p> <p>Goods of packing group II or III may be loaded in the same freight container or on the same vehicle if transported in segregation devices with:</p> <p style="padding-left: 40px;">Class 5.1 – Oxidising substances Class 5.2 Organic peroxides</p> <p>And are incompatible with food and food packaging in any quantity.</p>		
2	UN Number	1888
3	Proper shipping name	CHLOROFORM
4	DG Class	6.1
5	Hazchem Code	2Z
6	Packaging Method	3.8.6.1RT7,RT8
7	Packing Group	III
8	EPG Number	6A3
9	IERG Number	34

Section 15		Regulatory Information
1	Regulatory information	Australia
		Classified as hazardous according to the criteria of national Occupational Health & Safety Commission (NOHSC). Poison Schedule : 6
		New Zealand
		Classified as hazardous according to the Hazardous Substances (classification) regulations 2001
2	Poisons Schedule	Australia :- S6 New Zealand :- Not scheduled

3	Hazard Category	Harmful, Irritant
4	AICS (Australia)	All constituent chemicals are listed in the Australian Inventory of chemical Substances (AICS)
Section 16		Other Information
	Australian emergency number 1800 638 556	

Disclaimer

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.
