1. IDENTIFICATION

Product Name	**Industrial Methylated Spirit**
Other Names	Ethyl alcohol; IMS-100; IMS-95
Uses	Solvent; Fuel; Cleaning & laundry.
Chemical Family	No Data Available
Chemical Formula	C2H6O
Chemical Name	Ethanol
Product Description	0.25% Methyl isobutyl ketone (MIBK) is added as a denaturant.

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty 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

Globally Harmonised System

Hazard Classification		Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
Hazard Categories		Flammable Liquids - Category 2 Serious Eye Damage/Irritation - Category 2A	
Pictograms			
Signal Word		Danger	
Hazard Statements		**H225**	Highly flammable liquid and vapour.
		H319	Causes serious eye irritation.
Precautionary Statements	Prevention	**P210**	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
		P233	Keep container tightly closed.
		P280	Wear protective gloves/eye protection/face protection.
		P240	Ground/bond container and receiving equipment.
		P241	Use explosion-proof electrical/ventilating/lighting and all other equipment.
		P242	Use only non-sparking tools.
		P243	Take precautionary measures against static discharge.
	Response	**P370 + P378**	In case of fire: Use carbon dioxide (CO2), dry chemical, alcohol resistant foam or water spray for extinction.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P303 + P361 + P353	IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	Storage	**P403 + P235**	Store in a well-ventilated place. Keep cool.
	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)

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

HSNO Classifications	Physical Hazards	**3.1B**	Flammable liquid - high hazard
	Health Hazards	**6.4A**	Substances that are irritating to the eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Ethanol	C2H6O	64-17-5	>=95 %

Methyl isobutyl ketone (MIBK)	C6H12O	108-10-1	0.25 %
Water	H2O	7732-18-5	Balance %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Get medical advice/attention if you feel unwell.
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 rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin with running water for at least 15 minutes. In case of gross contamination, drench contaminated clothing and skin with plenty of water before removing clothes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse. In case of burns, immerse or flood affected area with cold water for 10 - 15 minutes. Bandage lightly with sterile dressing. Treat for shock if required - Obtain immediate medical care.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if respiratory symptoms persist or if you feel unwell. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim calm and warm - Obtain immediate medical care.
Advice to Doctor	Treat symptomatically. Ensure that attending medical personnel are aware of identity and nature of product(s) involved, and take precautions to protect themselves.
Medical Conditions Aggravated by Exposure	Repeated exposure may cause skin dryness or cracking.

5. FIRE FIGHTING MEASURES

General Measures	Evacuate area and contact emergency services. If safe to do so, move undamaged containers from fire area. Cool container with water spray until well after fire is out. Avoid getting water inside containers.
Flammability Conditions	HIGHLY FLAMMABLE LIQUID: Low flashpoint - Will be easily ignited by heat, sparks or flames at ambient temperatures.
Extinguishing Media	Use dry chemical, Carbon dioxide (CO2), alcohol-resistant foam or water spray for extinction - Do not use water jets. Alcohol resistant foam is the preferred firefighting medium but, if it is not available, fine water spray can be used. Caution: Use of water spray when fighting fire may be inefficient.
Fire and Explosion Hazard	Risk of violent reaction or explosion: Vapours will form explosive mixtures with air. Vapours will travel to source of ignition and flash back. Containers may explode when heated. Many liquids are lighter than water. Many vapours are heavier than air and will collect in low or confined areas. Vapours from runoff may create an explosion hazard. May irritate or burn skin and eyes. Vapours may cause dizziness or drowsiness.
Hazardous Products of Combustion	Fire may produce irritating, toxic and/or corrosive gases, including Carbon oxides, Hydrocarbons.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways; Vapours from runoff may create an explosion hazard.
Personal Protective Equipment	Normal firefighting clothing is appropriate, i.e. self-contained breathing apparatus (SCBA) worn in combination with full fire kit.
Flash Point	13 - 18 °C
Lower Explosion Limit	3.3 %
Upper Explosion Limit	19.0 %
Auto Ignition Temperature	392 °C
Hazchem Code	•2YE

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources - All equipment used in handling the product must be earthed. Do not touch or walk through spilled material. Avoid

	breathing vapours and contact with eyes, skin and clothing.
Clean Up Procedures	Collect recoverable product (e.g. by vacuum truck) to a salvage tank for recovery or disposal. Absorb small spills/residues with earth, sand or other non-combustible material; Use clean, non-sparking tools to collect material and place it in suitable, properly labelled containers for disposal (see SECTION 13).
Containment	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Large spill: Vapour-suppressing foam may be used to control vapours; Water spray may be used to knock down or divert vapour clouds.
Decontamination	Do not flush residues with water - Retain as contaminated waste. Allow any residues to evaporate or use an appropriate absorbent material and dispose of safely.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses - Runoff may pollute waterways; Vapours from runoff may create an explosion hazard.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground. Large spill: Evacuate area and contact emergency services.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8). Large spill: SCBA and gas-tight suits should be worn when dealing with damaged or leaking containers and where there is no risk of ignition. SCBA and structural firefighting uniform provide limited protection where there is a risk of ignition.

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. Handle and open containers with care. Avoid breathing vapours and contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/eye protection/face protection (see SECTION 8). Highly flammable liquid & vapour: Keep away from heat and sources of ignition - No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use and protect from physical damage. Keep away from heat and sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10).
Container	Keep in the original container. Ensure containers are properly labelled.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	COMPONENT: Ethanol (CAS No. 64-17-5): - Safe Work Australia Exposure Standard: TWA = 1,000 ppm (1,880 mg/m3). - New Zealand WES: TWA = 1,000 ppm (1,880 mg/m3). - NIOSH REL/OSHA PEL: TWA = 1,000 ppm (1,900 mg/m3). - Immediately dangerous to life or health (IDLH) concentration: 3,300 ppm. COMPONENT: Methyl isobutyl ketone (CAS No. 108-10-1): - Safe Work Australia Exposure Standard: TWA = 50 ppm (205 mg/m3); STEL = 75 ppm (307 mg/m3). - New Zealand WES: TWA = 50 ppm (205 mg/m3); STEL = 75 ppm (307 mg/m3). - NIOSH REL: TWA = 50 ppm (205 mg/m3); ST = 75 ppm (300 mg/m3). - OSHA PEL: TWA = 100 ppm (410 mg/m3). - Immediately dangerous to life or health (IDLH) concentration: 500 ppm.
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	Use in well-ventilated areas. In poorly ventilated areas, mechanical explosion proof extraction ventilation is recommended.
Personal Protection Equipment	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation and where an inhalation risk exists. Recommended: Organic vapour (type A) respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Wear splash-proof goggles. - Hand protection: Wear protective gloves. Recommended: Nitrile or neoprene gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: When using large quantities or where heavy contamination is likely, wear coveralls.
Special Hazards Precaustions	Flammable/explosive vapours may accumulate in poorly ventilated areas. Vapours are heavier than air and may travel some distance to an ignition source and flash back. Maintain vapour levels below the recommended exposure standard.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove contaminated clothing and shoes immediately and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear liquid
Odour	Alcoholic
Colour	Colourless
pH	No Data Available
Vapour Pressure	44 mgHg (@ 20 °C)
Relative Vapour Density	1.59 Air = 1
Boiling Point	78 °C
Melting Point	No Data Available
Freezing Point	-117 °C
Solubility	Completely soluble in water
Specific Gravity	0.79 - 0.81
Flash Point	13 - 18 °C
Auto Ignition Temp	392 °C
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	0.79 - 0.81 g/ml
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
Vapour Temperature	15 °C
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	Risk of violent reaction or explosion.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	HIGHLY FLAMMABLE LIQUID: Low flashpoint - Will be easily ignited by heat, sparks or flames at ambient temperatures.
Reactions That Release Gases or Vapours	Fire/decomposition may produce irritating, toxic and/or corrosive gases, including Carbon oxides, Hydrocarbons.
Release of Invisible Flammable Vapours and Gases	Vapours will form explosive mixtures with air.

10. STABILITY AND REACTIVITY

General Information	No information available.
Chemical Stability	Stable under normal conditions of use.
Conditions to Avoid	Keep away from heat and sources of ignition.
Materials to Avoid	Incompatible/reactive with oxidising agents, acids and strong alkalis.
Hazardous Decomposition Products	Fire/decomposition may produce irritating, toxic and/or corrosive gases, including Carbon oxides, Hydrocarbons.
Hazardous Polymerisation	No information available.

11. TOXICOLOGICAL INFORMATION

General Information

- Acute toxicity: Low acute toxicity. Ingestion may result in gastrointestinal irritation, nausea, vomiting, abdominal pain, diarrhoea, headache, dizziness and drowsiness with large doses. Toxic effects may result from skin absorption.
- Skin corrosion/irritation: Prolonged contact may result in drying and defatting of the skin, rash and dermatitis.
- Eye damage/irritation: Causes serious eye irritation. Exposure may result in lacrimation, irritation, pain and redness.
- Respiratory/skin sensitisation: Ethanol does not induce skin sensitisation in animals [NICNAS].
- Germ cell mutagenicity: Ethanol has no mutagenic or genotoxic potential [NICNAS].
- Carcinogenicity: While exposure Ethanol through consuming alcoholic beverages is associated with an increased risk of carcinogenicity, these risks are not considered relevant at doses relating to occupational exposure [NICNAS].
- Reproductive toxicity: While exposure Ethanol through consuming alcoholic beverages is associated with an increased risk of reproductive and developmental toxicity, these risks are not considered relevant at doses relating to occupational exposure [NICNAS].
- STOT (single exposure): Inhalation may cause irritation to the respiratory system, nose and throat irritation, coughing and headache. Over exposure may result in nausea, dizziness and drowsiness.
- STOT (repeated exposure): Ethanol is not considered to cause serious damage to health from repeated oral exposure, except from exposure to high doses; and is likely to be of low toxicity following repeated inhalation exposure [NICNAS]. Chronic ingestion may result in cirrhosis of the liver. Overexposure may cause central nervous system depression.
- Aspiration toxicity: No information available.

Acute

Ingestion

Acute toxicity (Oral):
COMPONENT: Ethanol (CAS No. 64-17-5):
- LD50, Rat: >2,000 mg/kg bw [NICNAS].

Other

Acute toxicity (Dermal):
COMPONENT: Ethanol (CAS No. 64-17-5):
- LD50, Rat: >2,000 mg/kg bw [NICNAS].

Inhalation

Acute toxicity (Inhalation):
COMPONENT: Ethanol (CAS No. 64-17-5):
- LC50, Rat: 124.7 mg/L (4 h) [NICNAS].

Carcinogen Category None

12. ECOLOGICAL INFORMATION

Ecotoxicity

Aquatic toxicity:
COMPONENT: Ethanol (CAS No. 64-17-5):
- LC0, Fish (Golden ide): >1,000 mg/L (48 h).
- EC50, Crustacea (Daphnia magna): >1,000 mg/L (24 h).

Persistence/Degradability	Ethanol will volatilise from water and biodegrade. It will photodegrade in air, with a half-life ranging from hours (polluted air) to days (clean air).
Mobility	If spilled on soil, Ethanol will either evaporate or leach into the ground due to the relatively high vapour pressure and low absorption in soil.
Environmental Fate	Prevent entry into soils, drains and waterways.
Bioaccumulation Potential	Not expected to bioconcentrate.
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	No information available.

14. TRANSPORT INFORMATION

Land Transport (Australia)
ADG Code

Proper Shipping Name	ETHANOL (ETHYL ALCOHOL)
Class	3 Flammable Liquids
Subsidiary Risk(s)	No Data Available
EPG	14 Liquids - Highly Flammable
UN Number	1170
Hazchem	•2YE
Pack Group	II
Special Provision	No Data Available

Land Transport (Malaysia)
ADR Code

Proper Shipping Name	ETHANOL (ETHYL ALCOHOL)
Class	3 Flammable Liquids
Subsidiary Risk(s)	No Data Available
EPG	14 Liquids - Highly Flammable
UN Number	1170
Hazchem	2YE
Pack Group	II
Special Provision	No Data Available

Land Transport (New Zealand)
NZS5433

Proper Shipping Name	ETHANOL (ETHYL ALCOHOL)
Class	3 Flammable Liquids
Subsidiary Risk(s)	No Data Available
EPG	14 Liquids - Highly Flammable
UN Number	1170
Hazchem	2YE
Pack Group	II
Special Provision	No Data Available

Land Transport (United States of America)
US DOT

Proper Shipping Name	ETHANOL (ETHYL ALCOHOL)
Class	3 Flammable Liquids
Subsidiary Risk(s)	No Data Available
ERG	127 Flammable Liquids (Polar / Water-Miscible)

UN Number	1170
Hazchem	2YE
Pack Group	II
Special Provision	No Data Available

Sea Transport
IMDG Code

Proper Shipping Name	ETHANOL (ETHYL ALCOHOL)
Class	3 Flammable Liquids
Subsidiary Risk(s)	No Data Available
UN Number	1170
Hazchem	2YE
Pack Group	II
Special Provision	No Data Available
EMS	F-E, S-D
Marine Pollutant	No

Air Transport
IATA DGR

Proper Shipping Name	ETHANOL (ETHYL ALCOHOL)
Class	3 Flammable Liquids
Subsidiary Risk(s)	No Data Available
UN Number	1170
Hazchem	2YE
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	METHYLATED SPIRIT(S) (being ethanol denatured with MIBK, etc) is listed in Schedule 5 of the SUSMP, except when packed in containers having a capacity of more than 5 litres.
Poisons Schedule (Aust)	Not Scheduled

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

Approval Code	HSR001144

National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Listed

Canada (NDSL)	Not Listed
China (IECSC)	Listed
Europe (EINECS)	200-578-6 203-550-1
Europe (REACh)	01-2119457610-43- 01-2119473980-30-
Japan (ENCS/METI)	2-202 2-542 (PACs)
Korea (KECI)	KE-13217 KE-24725
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	MESPIR3030, MESPIR3060, MESPIR3070, MESPIR3110, MESPIR3120, MESPIR3130, MESPIR3150, MESPIR3160, MESPIR3170, MESPIR3230, MESPIR4000, MESPIR4001, MESPIR4100, MESPIR4200, MESPIR4201, MESPIR4300, MESPIR4500, MESPIR4505, MESPIR4600, MESPIR4700, MESPIR4800, MESPIR4801, MESPIR6500, MESPIR7000
Revision	4
Revision Date	20 Feb 2017
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/cm³** 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 **inH2O** Inch of Water **K** Kelvin **kg** Kilogram **kg/m³** 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^3 Cubic Metre
mbar Millibar
mg Milligram
mg/24H Milligrams per 24 Hours
mg/kg Milligrams per Kilogram
mg/m^3 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