

1. IDENTIFICATION

Product Name	Methylated Spirits F2 Blends
Other Names	Ethyl Alcohol; SMS F2 Blends
Uses	Various
Chemical Family	No Data Available
Chemical Formula	C2H6O
Chemical Name	ETHANOL
Product Description	No Data Available

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 all sources of ignition. No smoking.
		P233	Keep container tightly closed.
		P242	Use only non-sparking tools.
		P243	Take precautionary measures against static discharge.
		P264	Wash contacted areas thoroughly after handling.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.
	Response	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.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P370 + P378	In case of fire: Alcohol resistant foam is the preferred fire-fighting medium. However, if it is not available, fine water spray or water fog can be used to extinguish.
	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
Diethyl Phthalate	No Data Available	84-66-2	0.5 v/v %

Ethanol	No Data Available	64-17-5	100 v/v %
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4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	If a minor amount has been accidentally swallowed, then, if conscious, dilute stomach contents by giving large amounts of water. Do not allow further work until fitness for duties is established. Do not attempt to induce vomiting or give anything by mouth to an unconscious person. Seek medical attention.
Eye	Flush eye with water for a minimum of 15 minutes. Seek medical attention promptly if irritation persists or any loss of vision occurs.
Skin	Immediately remove contaminated clothing. Wash skin with water. Launder contaminated clothing before re-use.
Inhaled	Remove promptly to fresh air. If there are signs of drunkenness (intoxication or inebriation) or respiratory irritation, dizziness, nausea or headache occurs, seek immediate medical attention.
Advice to Doctor	Treat symptomatically and as for a narcotic substance. If there are signs of drunkenness (intoxication or inebriation) then serious health effects may follow (depending on the amount swallowed or inhaled). Immediate medical attention should be sought and the affected person transferred and accompanied to the care of a doctor or hospital. Treat unconsciousness by placing the person in the coma position. Apply artificial respiration if breathing stops
Medical Conditions Aggravated by Exposure	No information available on medical conditions aggravated by exposure to this product.

5. FIRE FIGHTING MEASURES

General Measures	Flame-proof equipment is necessary in all areas where this chemical is being used. Nearby equipment must be earthed.
Flammability Conditions	Highly flammable liquid. May form flammable mixtures with air. Burns with a colourless flame. The vapour is heavier than air and may travel along the ground; distant ignition and flash back are possible. Run off to sewers and drains may cause explosions. Isolate for at least 800 metres in all directions if tanks or tankers are involved. The use of compressed air for filling, discharging, mixing or handling is prohibited due to the vapour hazard. All vessels must be earthed to avoid generation of static charges when agitating or transferring solvents. Avoid all ignition sources. Intrinsically safe equipment is necessary in areas where this chemical is being used.
Extinguishing Media	Alcohol-resistant foam is the preferred fire fighting medium but, if it is not available, fine water spray can be used can be used. Water fog, fine water spray, dry chemical or carbon dioxide may also be used.
Fire and Explosion Hazard	Highly flammable - explosive vapour. Evacuate area and contact emergency services. Toxic gases may be evolved when heated. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use water fog to cool intact containers and nearby storage areas.
Hazardous Products of Combustion	Burning can produce carbon monoxide and/or carbon dioxide.
Special Fire Fighting Instructions	Clear fire area of all non-emergency personnel. Stay upwind. Keep out of low areas. Eliminate ignition sources. Move fire exposed containers from fire area if it can be done without risk. Do NOT allow fire fighting water to reach waterways, drains or sewers. Store fire fighting water for treatment.
Personal Protective Equipment	Fire fighters should wear a positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves) or chemical splash suit.
Flash Point	(Ethanol) 13 °C Abel closed cup
Lower Explosion Limit	(Ethanol) 3.50 %
Upper Explosion Limit	19.0 %
Auto Ignition Temperature	392 °C
Hazchem Code	•2YE

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	In the event of a spill eliminate all sources of ignition and take measures to prevent static discharge. No smoking. Use water spray to disperse vapour.
Clean Up Procedures	Wash the cleaned-up area with copious volumes of water to remove any trace amounts of product. Spills can be converted to non-flammable mixtures by dilution with water. Non-returnable containers should be de-gassed prior to disposal. Dispose of all waste containers and used drums in accordance with local authority guidelines.
Containment	Stop leak if safe to do so.
Environmental Precautionary Measures	Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Use clean, non-sparking tools and equipment.
Evacuation Criteria	Evacuate all unnecessary personnel.
Personal Precautionary Measures	Personnel involved in the clean up should wear full protective clothing as listed in section 8.

7. HANDLING AND STORAGE

Handling	Before use, carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Prohibit eating, drinking and smoking in contaminated areas (eg. If container is damaged).
Storage	Store in a cool, dry, well-ventilated, fire-proof area. Keep containers tightly sealed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Ground and bond storage containers. Store away from incompatible materials as listed in section 10. Store away from oxidising agents, acids, alkalis, heat or ignition sources, foodstuffs, out of direct sunlight and out of the reach of children. Large storage areas should have appropriate fire protection. This product has a UN Classification of 1170 and a Dangerous Goods Class 3 (flammable) according to The Australian Code for the Transport of Dangerous Goods By Road and Rail.
Container	Container type/packaging must comply with all applicable local legislation. Store in original packaging as approved by manufacturer.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No exposure standard has been established for this product by the Australian Safety and Compensation Council (ASCC), however, the following information on constituents is as follows: ETHANOL: ES - TWA : 1000ppm (1880mg/m ³) WES - TWA : 1000ppm (1880mg/m ³) DIETHYL PHTHALATE: ES - TWA : 5mg/m ³ (Diethyl phthalate) WES-TWA: 5mg/m ³ NOTE: The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
Exposure Limits	No Data Available
Biological Limits	No information available on biological limit values for this product._
Engineering Measures	Do not inhale vapours. Use in well ventilated areas. In poorly ventilated areas, mechanical explosion proof extraction ventilation is recommended. 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.
Personal Protection Equipment	RESPIRATOR: Where an inhalation risk exists, wear a type A (Organic vapour) Respirator. At high levels wear Self Contained Breathing apparatus (SCBA) or an Air-line respirator (AS1715/1716). EYES: Wear splash proof goggles (AS1336/1337). HANDS: Nitrile or neoprene rubber gloves (AS2161). CLOTHING: When using large quantities or where heavy contamination is likely wear coveralls and anti-static footwear (AS3765/2210).
Work Hygienic Practices	No Data Available

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
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Appearance	Liquid, free of any foreign matter
Odour	Characteristic alcohol odour. Ethanol odour is detectable at 80 - 100 ppm
Colour	Clear yellow
pH	No Data Available
Vapour Pressure	44 mm Hg (@ 20 °C)
Relative Vapour Density	1.59 Air = 1
Boiling Point	(Ethanol) 78 °C
Melting Point	No Data Available
Freezing Point	(Ethanol) -117 °C
Solubility	(Ethanol) Complete
Specific Gravity	0.79 - 0.81 (Ethanol) Water = 1
Flash Point	(Ethanol) 13 °C Abel closed cup
Auto Ignition Temp	392 °C
Evaporation Rate	253 (n-Butyl Acetate = 100) (Ethanol)
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	0.79 g/mL (Ethanol)
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	No Data Available
Viscosity	No Data Available
Volatile Percent	100
VOC Volume	100 %
Additional Characteristics	No Data Available
Potential for Dust Explosion	Product is a liquid.
Fast or Intensely Burning Characteristics	No Data Available
Flame Propagation or Burning Rate of Solid Materials	No Data Available
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No Data Available
Properties That May Initiate or Contribute to Fire Intensity	No Data Available
Reactions That Release Gases or Vapours	No Data Available
Release of Invisible Flammable Vapours and Gases	No Data Available

10. STABILITY AND REACTIVITY

General Information	Flammable Liquid.
Chemical Stability	Product is stable under normal conditions of use, storage and temperature. Flammable Liquid.
Conditions to Avoid	Heat, sparks, flame and build-up of static electricity.
Materials to Avoid	Incompatible with oxidising agents (eg. Hypochlorites, peroxides), acids (sulphuric acid), strong alkalis (eg.

Hazardous Decomposition Products

Hydroxides), heat and ignitions sources.
Burning can produce carbon monoxide and/or carbon dioxide.

Hazardous Polymerisation

Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION**General Information**

LD50/oral/rat: 7060 mg/kg (literature data) (Ethanol)
LC50/inhalation/rat: 38 mg/l/10 h (literature data) (Ethanol)

DIETHYL PHTHALATE:
Oral LD50 Rabbit: 1 g/Kg

HEALTH HAZARD SUMMARY:

Low to moderate toxicity - irritant. This product has the potential to cause adverse health effects with chronic over exposure. Use safe work practices to avoid eye or skin contact and over exposure via inhalation. Chronic ingestion may result in cirrhosis of the liver. Over exposure may cause central nervous system depression.

The denaturants used in this product may be one or more of the following: diethyl phthalate, tertiary butyl alcohol (t-butanol), denatonium benzoate, methyl isobutyl ketone (MIBK) or sucrose octa acetate. The denaturants do not exceed 1.0% of the final product and at this low concentration do not alter the health and safety information for the product.

Eyelrritant

Vapours may irritate the eyes. Liquid and mists may severely irritate or damage the eyes.

Ingestion

Accidental swallowing is unlikely in the industrial setting. Swallowing ethanol can cause drunkenness or harmful central nervous system effects. The deliberate ingestion of ethanol is a known occupational risk. As little as 50 - 100 ml intake in a shift in a 70kg worker may cause inebriation to the point where safety is impaired. Effects of a small intake may include excitation, euphoria, headache, dizziness, drowsiness, blurred vision, and fatigue. Drinking a large amount may lead to severe acute intoxication, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death. Aspiration into lungs may cause pneumonitis

Inhalation

Vapour is moderately irritating to mucous membranes and respiratory tract. Inhalation of the vapour may result in drunkenness (see effects of swallowing above) or headache, nausea, incoordination, narcosis (sleepiness) and vomiting.

Early signs or symptoms may occur at airborne levels of 1000 to 5000 ppm.

SkinIrritant

Contact with skin may result in slight irritation and redness.

Chronic**Other**

Long term exposure by swallowing or repeated inhalation may cause degenerative changes in the liver, kidneys, gastrointestinal tract and heart muscle.
Prolonged or repeated contact and heavy skin contamination may cause skin drying and cracking and/or dermatitis with redness, itching, and swelling. This may lead to secondary infection.
Ongoing or repeated exposures at high concentrations may cause central nervous system symptoms similar to "Acute: Swallowed" above. Deliberate inhalation of the vapour is a known occupational risk.

Additional Notes :

Nasal and eye irritation may occur at concentrations below the exposure standard. Exposure to ethanol in the work setting adds to any intake from alcoholic drinks and any health effects caused by the total intake of alcohol.

In work areas where exposures in excess of the occupational exposure limits occur, then the following may apply:

- Persons with pre-existing liver impairment, skin and respiratory disorders may be at an increased risk.
 - Ethanol may cause adverse reproductive effects.
 - Absorption of some drugs may be affected causing adverse health effects.
 - Ingestion by pregnant women may cause serious effects in their newborn babies called "foetal alcohol syndrome".
- The National Occupational Health & Safety Commission in Australia (NOHSC) does not classify ethanol as a carcinogen.

IARC has evaluated ethanol as a carcinogen on the basis of effects of drinking alcoholic beverages, but there is no known carcinogenic risk from occupational exposures.

There is extensive toxicological and epidemiological information on the health effects of ingesting alcoholic drinks containing ethanol.

Inhalation at levels at or exceeding the Occupational Exposure limits or any deliberate ingestion is known to lead to health effects which may be evident in themselves or lead to impaired functioning and consequent safety risks in the industrial setting.

A blood alcohol level in excess of 0.05g/100ml is regarded as likely to impair functioning for tasks such as operating machinery.

Carcinogen Category

No Data Available

12. ECOLOGICAL INFORMATION

Ecotoxicity	(Ethanol) Toxicity to fish (acute): LC50/Golden ide/: >1000 mg/l/48 h Toxicity to daphnia: ec50/Daphnia magna/: >1000 mg/l/24 h Diethyl Phthalate: Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.
Persistence/Degradability	(Ethanol) Degree of elimination: 94% Evaluation: biodegradable
Mobility	No information available on mobility for this product.
Environmental Fate	Do NOT let product reach waterways, drains and sewers.
Bioaccumulation Potential	No information available on bioaccumulation for this product.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of in accordance with all local, state and federal regulations. All empty packaging should be disposed of in accordance with Local, State, and Federal Regulations or recycled/reconditioned at an approved facility.
Special Precautions for Land Fill	Contact a specialist disposal company or the local waste regulator for advice. For small amounts absorb with sand, vermiculite or similar and dispose of to an approved landfill site. Contact the manufacturer for additional information if larger amounts are involved. Prevent contamination of drains and waterways as aquatic life may be threatened and environmental damage may result.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
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

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

Air Transport

IATA DGR

Proper Shipping Name ETHANOL SOLUTION (ETHYL ALCOHOL SOLUTION)
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** No Data Available**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)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION

Related Product Codes	MESPSP0100, MESPSP0101, MESPSP0102, MESPSP0200, MESPSP0201, MESPSP0202, MESPSP0203, MESPSP0250, MESPSP0300, MESPSP0400, MESPSP0500, MESPSP8100, MESPSP8200, MESPSP8300
Revision	3
Revision Date	17 Sep 2015
Reason for Issue	Updated SDS
	< Less Than
	> Greater Than

Key/Legend

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 insoluble 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
m³ 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 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