Infosafe No™ 1CH2M Issue Date :January 2021 RE-ISSUED by CHEMSUPP

Product Name **DIETHYL ETHER**

Classified as hazardous

1. Identification

GHS Product Identifier	DIETHYL ETHER
Company Name	CHEMSUPPLY AUSTRALIA PTY LTD (ABN 19 008 264 211)
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia
Telephone/Fax Number	Tel: (08) 8440-2000
Emergency phone number	CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)
E-mail Address	www.chemsupply.com.au
Recommended use of the chemical and restrictions on use	Organic synthesis, anaesthetic, smokeless powder, industrial solvent (nitrocellulose, alkaloids, fats, waxes, oils, perfumes, gums), extractant, analytical reagent and laboratory reagent.

Other Names

Name	Product Code
DIETHYL ETHER AR, stabilised with BHT	EA012
DIETHYL ETHER Anhydrous AR, stabilised with BHT	EA036
DIETHYL ETHER TG	ET012
Ethyl ether, Diethyl oxide, 1,1'-Oxybisethane, Ethyl oxide	

Other Information

ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Flammable Liquids: Category 1 Acute Toxicity - Oral: Category 4 Specific target organ toxicity - Single Exposure Category 3
Signal Word (s)	DANGER
Hazard Statement (s)	H224 Extremely flammable liquid and vapour. H302 Harmful if swallowed. H336 May cause drowsiness or dizziness.
Pictogram (s)	Flame, Exclamation mark

Precautionary statement – 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. P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

	P264 Wash 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.
Precautionary statement – Response	P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P370+P378 In case of fire: Use alcohol resistant-foam, dry chemical, carbon dioxide or water spray for extinction.
Precautionary statement – Storage	P403+P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.
Precautionary statement – Disposal	P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Information on Composition

Product contains butylated hydroxy toluene (BHT) as preservative.

Ingredients

Name	CAS	Proportion
Diethyl ether	60-29-7	100 %

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Consult a physician. If inhaled, remove from contaminated area to fresh air immediately, avoid becoming a casualty. Make patient comfortable, keep warm and at rest until fully recovered. If breathing is difficult (or develops a bluish skin discolouration), supply oxygen by a qualified person. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Seek medical advice.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.
Skin	Wash affected areas with copious quantities of water. Remove contaminated clothing and wash before re-use. If irritation occurs seek medical advice.
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek medical attention.
First Aid Facilities	Maintain eyewash fountain and safety shower in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products	May liberate toxic fumes oxides of carbon.
Specific Methods	Caution: Use of water spray when fighting fire may be inefficient. Small fire: Use alcohol resistant foam (if not available, normal foam can be used), dry chemical, CO2 or water spray. Large fire: Use foam, fog or water spray - Do not use water jets. If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after fire is out. Avoid getting

	water inside containers.
Specific hazards arising from the chemical	HIGHLY FLAMMABLE: product has a low flash point - Will be easily ignited by heat, sparks or flames at ambient temperatures. Vapours will form explosive mixtures with air. Vapours will travel to source of ignition and flash back. Fire may produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Liquid is lighter than water. Vapours are heavier than air and will collect in low or confined areas (drains, basements, tanks). Vapours from run-off may create an explosion hazard.
Hazchem Code	•3YE
Precautions in connection with Fire	SCBA and structural firefighter's uniform may provide limited protection. Fully-encapsulating, gas-tight suits should be worn for maximum protection.

6. Accidental release measures

Spills & Disposal	ELIMINATE all ignition sources (no smoking, flares, sparks or flame) within at least 50m - All equipment used in handling the product must be earthed. Do not touch or walk through spilled material. Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours. Absorb spill with earth, sand or other non-combustible material - Use clean, non-sparking tools to collect material and place it in loosely-covered metal or plastic containers for later disposal. Water spray may be used to knock down or divert vapour clouds. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.
Personal Precautions	Evacuate the area of all non-essential personnel. Remove ignition sources Avoid inhalation, contact with skin, eyes and clothing.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)
Clean-up Methods - Small Spillages	Absorb or contain liquid with sand, earth or spill control material. Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.
Clean-up Methods - Large Spillages	Seek expert advice on handling and disposal.

7. Handling and storage

Precautions for Safe Handling	Take precautionary measures against static discharges. All electrical equipment must be flameproofed. Work under hood. Avoid generation of vapours/aerosols. Care should be taken to remove any peroxides present before distilling to low volume. Do not breathe vapour. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.
Conditions for safe storage, including any incompatibilities	Store in well ventilated area. Store away from sources of heat or ignition. Store away from oxidizing agents. Store away from acids. Keep container tightly closed and dry, away from direct sunlight. Store at room temperature (15 - 25 °C). Store small containers in suitable flammable liquid storage cabinets. Larger drums (200L) must be kept in purpose-built stores.
Storage Regulations	Refer Australian Standard AS/NZS 2243.10:2004 'Safety in laboratories - Storage of chemicals'. Refer Australian Standard AS 1940-2017 'The storage and handling of flammable and combustible liquids'.
Unsuitable Materials	No aluminium, tin, or zinc containers.
Other Information	Periodically test for peroxide formation on long-term storage. If peroxide formation is suspected, do not move or open container/s. Do not distill or allow to evaporate to near dryness. Opened containers should be purged with nitrogen and resealed.

8. Exposure controls/personal protection

Occupational exposure limit values

Name	STEL		TWA		
	mg/m3	ppm	mg/m3	ppm	Footnote
Diethyl ether	1520	500	1210	400	

Other Exposure Information	These Workplace 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 workplace 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. A time weighted average (TWA) has been established for Diethyl ether (Safe Work Australiat) of 1210 mg/m³, (400 ppm). The corresponding STEL level is 1520 mg/m³, (500 ppm). The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. 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.
Appropriate engineering controls	Maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. Provide sufficient ventilation. Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flame proof exhaust ventilation system is required. Refer to AS 1940-The storage and handling of flammable and combustible liquids and AS 2430-Explosive gas atmospheres for further information concerning ventilation requirements.
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.
Hand Protection	Wear gloves of impervious material conforming to AS/NZS 2161: Occupational protective gloves - Selection, use and maintenance. Final choice of appropriate glove type will vary according to individual circumstances. This can include methods of handling, and engineering controls as determined by appropriate risk assessments. Avoid skin contact when removing gloves from hands, do not touch the gloves outer surface. Dispose of gloves as hazardous waste.
Personal Protective Equipment	Personal protective equipment should not solely be relied upon to control risk and should only be used when all other reasonably practicable control measures do not eliminate or sufficiently minimise risk. Guidance in selecting personal protective equipment can be obtained from Australian, Australian/New Zealand or other approved standards.
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.
Body Protection	Flame retardant antistatic protective clothing. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Liquid
Appearance	Colourless, transparent, volatile and mobile liquid.
Odour	Pleasant aromatic odour.
Melting Point	-116.3 °C

Boiling Point	34.6 °C
Solubility in Water	Slightly soluble in water.
Solubility in Organic Solvents	Soluble in all proportions with simple alcohols (e.g. ethanol, butanol), benzene, xylene, petroleum ether, chloroform and most other organic solvents.
Specific Gravity	0.71
Vapour Pressure	563 mm Hg @ 20 °C
Vapour Density (Air=1)	2.56 (air=1)
Evaporation Rate	11.1-11.8 (n-butyl acetate = 1)
Odour Threshold	0.3 ppm (100% recognition)
Viscosity	
Specific Properties or Risk	May form explosive peroxides.
Partition Coefficient: n-octanol/water	Log P(o/w) = 0.89
Surface Tension	17.06 mN/m (17.06 dynes/cm) @ 20 °C
Flash Point	-40 °C (Closed cup).
Flammability	EXTREMELY FLAMMABLE. Keep away from heat, sparks or naked flames. Use flameproof equipment and fittings to prevent flammability risk. Electrically link and ground metal containers for transfer of the product to prevent accumulation of static electricity. Ensure adequate ventilation to prevent an explosive vapour-air mixture. Vapours will travel considerable distances to sources of ignition.
Auto-Ignition Temperature	180 °C
Flammable Limits - Lower	1.7%
Flammable Limits - Upper	36%
Explosion Properties	Forms explosive peroxides upon prolonged exposure to air and light. Peroxides may explode violently when heated.
Molecular Weight	74.14
Kinematic Viscosity	0.322 - 0.343 centistokes @ 20 °C.
Dynamic Viscosity	0.23 - 0.245 cP @ 20 °C.
Saturated Vapour Concentration	Approximately 58% (581700 ppm) @ 20 °C.
Other Information	Conversion factor: 1 ppm = 3.03 mg/m³ Critical temperature: 194 °C Dielectric constant: 4.335 @ 20 °C

10. Stability and reactivity

Chemical Stability	Normally stable. Upon prolonged exposure to air and light, slowly forms peroxides or polyperoxides, which are dangerously explosive, even below 100 °C and may explode when heated, or spontaneously when concentrated. Old containers may contain explosive peroxides.
Conditions to Avoid	Heat, air and light. Extremes of temperatures and direct sunglight.
Incompatible Materials	Srong oxidisers, light, air, heat, strong acids, halogens, halogen-halogen compounds, nonmetals, nonmetallic oxyhalides, strong oxidizing agents, chromyl chloride, turpentine oils and/or turpentine substitutes, nitrates, metallic chlorides.
Hazardous Decomposition Products	Oxides of carbon and peroxides.

Hazardous Polymerization	Will not occur.
Other Information	Product can be stabilised with BHT (2,6-di-tert.-butyl-4-emthylphenol).

11. Toxicological Information

Toxicology Information	No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. If mishandled or overexposed to this product the following symptoms or effects may occur.
Acute Toxicity - Oral	LD50 (rat): 1215 mg/kg.
Ingestion	Harmful if swallowed. May initially cause exhilaration, excitement, irritability and pugnacity, but leads to depression, confusion, drowsiness and stupor. After accidental swallowing the substance may pose a risk of aspiration. Passage into the lung (vomiting!) can result in a condition resembling pneumonia (chemical pneumonitis).
Inhalation	Vapours may cause mucosal irritation, drowsiness and dizziness. Repeated exposures above the TLV may cause nasal irritation, loss of appetite, salivation, headache, euphoria, excitation, ataxia (impaired locomotor coordination) and inebriation and which can be followed by narcosis, collapse, unconsciousness and coma at high concentrations. Respiratory paralysis and death cannot be excluded.
Skin	Drying-out effect resulting in rough and chapped skin. Secondary inflammation and dermatitis may result.
Eye	May cause soreness and irritation.
Respiratory sensitisation	Not classified based on available information.
Skin Sensitisation	Not classified based on available information.
Germ cell mutagenicity	Not classified based on available information.
Carcinogenicity	Not classified based on available information.
Reproductive Toxicity	Not classified based on available information.
STOT-single exposure	Not classified based on available information.
STOT-repeated exposure	Not classified based on available information.
Chronic Effects	Repeated or prolonged skin contact may cause skin dryness and cracking. Prolonged and severe exposure may cause unconsciousness.
Serious eye damage/irritation	Not classified based on available information.
Mutagenicity	Not classified based on available information.

12. Ecological information

Ecotoxicity	Toxic for aquatic organisms. When used properly, no impairments in the function of waste-water-treatment plants are to be expected.
Persistence and degradability	Biological degradability: slightly.
Bioaccumulative Potential	Low bioaccumulation potential (log P(o/w) <1) Distribution: log P(o/w): 0.89.
Environmental Protection	Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

14. Transport information

Transport Information	Dangerous goods of Class 3 (Flammable Liquid) are incompatible in a placard load with any of the following: Class 1, Class 2.1, if both the Class 3 and Class 2.1 dangerous goods are in bulk, Class 2.3, Class 4.2, Class 5, Class 6, if the Class 3 dangerous goods are nitromethane, Class 7.
U.N. Number	1155
UN proper shipping name	DIETHYL ETHER (ETHYL ETHER)
Transport hazard class(es)	3
Hazchem Code	•3YE
Packing Group	I
EPG Number	3A1
IERG Number	14D
Environmental Hazards	Toxic to aquatic organisms.

15. Regulatory information

Regulatory Information	All the constituents of this product are listed on the Australian Inventory of Chemical Substances (AICS), or exempted. Not listed under WHS Regulation 2011, Schedule 10 - Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.
Poisons Schedule	S6

16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons .', Commonwealth of Australia. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'. Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals'. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand. Safe Work Australia, 'Hazardous Chemical Information System'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment'.
Contact Person/Point	Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. ChemSupply Australia Pty Ltd accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
Empirical Formula & Structural Formula	C4 H10 O

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