Safety data sheet
Dimethylether

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product name
Dimethylether

EC No (from EINECS): 204-065-8
CAS No: 115-10-6
Index-Nr. 603-019-00-8
Chemical formula C2H6O
REACH Registration number:
01-2119472128-37

1.2. Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses
Industrial and professional. Perform risk assessment prior to use.
Uses advised against
Consumer use.

1.3. Details of the supplier of the safety data sheet
Company identification
BOC, PO Box 1201, Bluebell, Dublin
E-Mail Address ReachSDS@boc.com

1.4. Emergency telephone number
Emergency phone numbers (24h): 1850 333 435

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification acc. to Regulation (EC) No 1272/2008/EC (CLP/GHS)
Press. Gas (Liquefied gas) - Contains gas under pressure; may explode if heated.
Flam. Gas 1 - Extremely flammable gas.

Classification acc. to Directive 67/548/EEC & 1999/45/EC
F+; R12
Extremely flammable.
Risk advice to man and the environment
Liquefied gas.
Contact with liquid may cause cold burns/frost bite.

2.2. Label elements
- Labelling Pictograms

- Signal word

Danger

- Hazard Statements

H280	Contains gas under pressure; may explode if heated.
H220	Extremely flammable gas.

- Precautionary Statements

Precautionary Statement Prevention

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Precautionary Statement Response

P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.

Precautionary Statement Storage

P403	Store in a well-ventilated place.

Precautionary Statement Disposal

None.

2.3. Other hazards
Contact with liquid may cause cold burns/frost bite.

SECTION 3: Composition/information on ingredients

Substance / Mixture: Substance.

3.1. Substances
Dimethylether
CAS No: 115-10-6
Index-Nr.: 603-019-00-8
EC No (from EINECS): 204-065-8
REACH Registration number:
01-2119472128-37
Contains no other components or impurities which will influence the classification of the product.

3.2. Mixtures
Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures
First Aid General Information:
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
First Aid Inhalation:
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
First Aid Skin / Eye:
For liquid spillage - flush with water for at least 15 minutes. In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Immediately flush eyes thoroughly with water for at least 15 minutes.
First Aid Ingestion:
Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed
In high concentrations may cause asphyxiation. Symptoms

may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.

4.3. Indication of any immediate medical attention and special treatment needed
None.

SECTION 5: Fire fighting measures

5.1. Extinguishing media
Suitable extinguishing media
All known extinguishants can be used.
Unsuitable extinguishing media
Do not use a solid water stream.

5.2. Special hazards arising from the substance or mixture
Specific hazards
Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products
If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition:
Carbon dioxide, Carbon monoxide.

5.3. Advice for firefighters
Specific methods
If possible, stop flow of product. Move container away or cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Prevent water used in emergency cases from entering sewers and drainage systems.
Special protective equipment for fire fighters
Use self-contained breathing apparatus and chemically protective clothing. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to EN 469 will provide a basic level of protection from chemical incidents. EN 469:2005: Protective clothing for fire-fighters. Performance requirements for protective clothing for fire-fighting.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Consider the risk of potentially explosive atmospheres. Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

6.2. Environmental precautions
Try to stop release.

6.3. Methods and material for containment and cleaning up
Ventilate area.

6.4. Reference to other sections
See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Only experienced and properly instructed persons should handle gases under pressure. The substance must be handled in accordance with good industrial hygiene and safety procedures. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Take precautionary measures against static discharges. Ensure equipment is adequately earthed. Purge air from system before introducing gas. Keep away from ignition sources (including static discharges). Do not smoke while handling product. Assess the risk of potentially explosive atmosphere and the need for explosion-proof equipment. Consider the use of only non-sparking tools. Ensure the complete gas system has been (or is regularly) checked for leaks before use. Avoid suckback of water, acid and alkalis. Refer to supplier's handling instructions. Do not allow backfeed into the container. Protect cylinders from physical damage; do not drag, roll, slide or drop. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier. Keep container valve outlets clean and free from contaminates particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. Never attempt to transfer gases from one cylinder/container to another. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

7.2. Conditions for safe storage, including any incompatibilities
Observe all regulations and local requirements regarding storage of containers. Keep container below 50°C in a well ventilated place. Segregate from oxidant gases and other oxidants in store. Containers should be stored in the vertical position and properly secured to prevent falling over. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible materials. All electrical equipment in the storage areas should be compatible with the risk of potentially explosive atmosphere. Containers should not be stored in conditions likely to encourage corrosion.

7.3. Specific end use(s)
None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit value

Value type	value	Note
Great Britain - LTEL	400 ppm	EH 40/07
Great Britain - STEL	500 ppm	EH 40/07

Derived No Effect Levels

Type	Exposure	Value	Population	Effects
DNEL	Long term Inhalation	1894 mg/m^3	Workers	Systemic
DNEL	Long term Inhalation	471 mg/m^3	Consumers	Systemic

Predicted No Effect Concentrations

Type	Compartment Detail	Value
PNEC	Fresh	0,155 mg/l
PNEC	Marine	0,016 mg/l
PNEC	Intermittent	1,549 mg/l
PNEC	Fresh (Sediment)	0,681 mg/kg dw
PNEC	Marine (Sediment)	0,069 mg/kg dw
PNEC	STP (Sewage Treatment Plant)	160 mg/l
PNEC	Soil	0,045 mg/kg

8.2. Exposure controls

Appropriate engineering controls

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered. Keep concentrations well below occupational exposure limits. The substance must be handled in accordance with good industrial hygiene and safety procedures. Consider work permit system e.g. for maintenance activities. Use only permanent leak-tight installations (e.g. welded pipes). Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system. Provide adequate general or local ventilation. Gas detectors should be used when quantities of flammable gases/vapours may be released.

Personal protective equipment

Eye and face protection

Protect eyes, face and skin from liquid splashes. Wear a face-shield when transfilling and breaking transfer connections. Safety eyewear, goggles or face-shield to EN166 should be used to avoid exposure to liquid splashes. Wear eye protection to EN 166 when using gases. Full-face mask recommended.
Guideline:
EN 136: Respiratory protective devices. Full face masks. Requirements, testing, marking.

Skin protection

Hand protection

Advice: Wear cold insulating gloves.
Guideline: EN 511 Protective gloves against cold.

Advice: Wear working gloves and safety shoes while handling gas cylinders.

Body protection

Protect eyes, face and skin from contact with product. Keep suitable chemically resistant protective clothing readily available for emergency use. Personal protective equipment for the body should be selected based on the task being performed and the risks involved.
Guideline:
EN 943: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles.

Other protection

Wear flame resistant/retardant clothing. Take precautionary measures against static discharges. Wear working gloves and safety shoes while handling gas cylinders. ISO 20345 Safety footwear.

Respiratory protection

Keep self contained breathing apparatus readily available for emergency use. Use SCBA in the event of high concentrations. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD. When allowed by a risk assessment Respiratory Protective Equipment (RPE) may be used.
Guideline:
EN 136: Respiratory protective devices. Full face masks. Requirements, testing, marking.

Material:
Filter AX
Guideline:
EN 14387: Respiratory protective devices. Gas filter(s) and combined filter(s). Requirements, testing, marking

Thermal hazards

If there is a risk of contact with the liquid, all protective equipment should be suitable for extremely low temperatures.

Environmental Exposure Controls

Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General information

Appearance/Colour: Colourless gas.
Odour: Ethereal Poor warning properties at low

concentrations.
Odour threshold:
Odour threshold is subjective and inadequate to warn for over exposure.
Melting point: -141,5 °C
Boiling point: -24,80 °C
Flash point: Not applicable for gases and gas mixtures.
Evaporation rate:
Not applicable for gases and gas mixtures.
Flammability range: 2,7 %(V) - 32 %(V)
Vapour Pressure 20 °C: 5,1 bar
Relative density, gas: 1,6
Solubility in water: No reliable data available.
Partition coefficient: n-octanol/water: 0,1 logPow
Autoignition temperature: 235 °C
Explosive properties:
Explosive acc. EU legislation: Not explosive.
Explosive acc. transp. reg.: Not explosive.
Molecular weight: 46 g/mol
Critical temperature: 127 °C
Relative density, liquid: 0,73

9.2. Other information
Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity
Unreactive under normal conditions.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Can form potential explosive atmosphere in air., May react violently with oxidants.

10.4. Conditions to avoid
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

10.5. Incompatible materials
Air, Oxidiser. For material compatibility see latest version of ISO-11114.

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition:
Carbon dioxide, Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute oral toxicity
Not applicable.
Acute inhalation toxicity
Value: LC50
Species: Rat
Exposure time: 4 h
Value in non-standard unit: 164000 ppm
Irregular cardiac activity., Narcosis., Depression of central nervous system.
Acute toxicity other routes
Ingestion is not considered a potential route of exposure.
Skin irritation
Not classified as an irritant.
Eye irritation
Not classified as an irritant.
Sensitization
No known effects from this product.
Repeated dose toxicity
Species: Rat
Route of application: Inhalation
No known effects from this product.

Species: Rat
Exposure time: 2 years, 6 hours/day, 5 days/week.
Method: OECD Test Guideline 452
Value: NOAEC
Value in non-standard unit: 47106 mg/m3
No known effects from this product.

Genetic toxicity in vitro
Test type: Ames test in vitro:
Result: Negative.
Method: OECD Test Guideline 471

Test type: Chromosome abberration
Result: Negative.
Method: OECD Test Guideline 473
Genetic toxicity in vivo
Test type: Drosphila SLRL test
Method: OECD Guideline 477
Negative.
Assessment mutagenicity
Memo: There is no evidence of mutagenic potential.
Carcinogenicity
Species: Rat
Exposure time: 2 years, 6 hours/day, 5 days/week.
Method: OECD Test Guideline 452
Value: NOAEC
Value in non-standard unit: 47106 mg/m3
Assessment carcinogenicity
No evidence of carcinogenic effects.
Assessment toxicity to reproduction
No indication of toxic effects.
Other relevant toxicity information
Irregular cardiac activity.

SECTION 12: Ecological information

12.1. Toxicity

Acute and prolonged toxicity fish
Species: Guppy (Poecilia reticulata)
Exposure time: 96 h
Value type: LC50
Value in standard unit mg/l: > 4.000 mg/l
Study not necessary due to exposure considerations.
Acute toxicity aquatic invertebrates
Species: Daphnia magna

Exposure time: 48 h
Value type: EC50
Value in standard unit mg/l: > 4.000 mg/l
Study not necessary due to exposure considerations.
Toxicity aquatic plants
Species: Algae
Exposure time: 96 h
Value type: EC50
Value in standard unit mg/l: 154,9 mg/l

12.2. Persistence and degradability

Stability in atmosphere
Lifetime: 5.1 days
The substance degrades rapidly in the atmosphere
Stability in water
Hydrolytically stable.
Biodegradation
Method: Closed bottle test.
Not readily biodegradable.
Biodegradation
Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Not readily biodegradable.
Physical chemical eliminability
This product can be degraded by abiotic (eg. Chemical or photolytic) processes.

12.3. Bioaccumulative potential
Because of the partition coefficient of the contaminant in the organic fraction of the soil (log Kow), accumulation in organisms is not to be expected.

12.4. Mobility in soil
Koc: 7.8
Because of its high volatility, the product is unlikely to cause ground or water pollution., Because of the partition coefficient of the contaminant in the organic fraction of the soil (low log Kow), exposure to the soil compartment is not to be expected.
Transport between environment compartments
Because of the partition coefficient of the contaminant in the organic fraction of the soil (low log Kow), exposure to the soil compartment is not to be expected.

12.5. Results of PBT and vPvB assessment
Not classified as PBT or vPvB.

12.6. Other adverse effects
Global Warming Potential GWP
When discharged in large quantities may contribute to the greenhouse effect
1

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required. Gases in pressure containers (including halons) containing dangerous substances
EWC Nr. 16 05 04*

SECTION 14: Transport information

ADR/RID

14.1. UN number
1033

14.2. UN proper shipping name
Dimethylether

14.3. Transport hazard class(es)
Class: 2
Classification Code: 2F
Labels: 2.1
Hazard number: 23
Emergency Action Code: 2YE
Tunnel code: (B/D)

14.4. Packing group (Packing Instruction)
P200

14.5. Environmental hazards
None.

14.6. Special precautions for user
None.

IMDG

14.1. UN number
1033

14.2. UN proper shipping name
Dimethylether

14.3. Transport hazard class(es)
Class: 2.1
Labels: 2.1
EmS: F-D,S-U

14.4. Packing group (Packing Instruction)
P200

14.5. Environmental hazards
None.

14.6. Special precautions for user
None.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

IATA

14.1. UN number
1033

14.2. UN proper shipping name

Dimethylether

14.3. Transport hazard class(es)
Class: 2.1
Labels: 2.1

14.4. Packing group (Packing Instruction)
P200

14.5. Environmental hazards
None.

14.6. Special precautions for user
None.

Other transport information
Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers ensure that they are firmly secured. Ensure that the cylinder valve is closed and not leaking. Ensure that the valve outlet cap nut or plug (where provided) is correctly fitted. Ensure that the valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Seveso Directive 96/82/EC: : Listed

15.2. Chemical safety assessment
CSA has been carried out.

SECTION 16: Other information

Ensure all national/local regulations are observed. Ensure operators understand the flammability hazard. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Advice
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted. Details given in this document are believed to be correct at the time of going to press.
Further information
Note:
When using this document care should be taken, as the decimal sign and its position complies with rules for the structure and drafting of international standards, and is a comma on the line.
As an example 2,000 is two (to three decimal places) and not two thousand, whilst 1.000 is one thousand and not one (to three decimal places).

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