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

1.1. Product identifier

Trade name : Butane, Butane n-, N-Butane, Butane N25, Butane N35
SDS no : NOAL_0014
Other means of identification : Butane
CAS-No. : 106-97-8
EC-No. : 203-448-7
EC Index-No. : 601-004-00-0
REACH registration No : 01-2119474691-32
Chemical formula : C4H10

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : Industrial and professional uses. Perform risk assessment prior to use.
Test gas/Calibration gas.
Laboratory use.
Contact supplier for more information on uses.
Uses advised against : Consumer use.
Uses other than those listed above are not supported, contact your supplier for more information on other uses.

1.3. Details of the supplier of the safety data sheet

Company identification

Supplier
AIR LIQUIDE Denmark A/S
Høje Taastrupvej 42
2630 Taastrup - DENMARK
T +45 76 25 25 25
info.denmark@airliquide.com

E-Mail address (competent person) : eunordic-sds@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 112
(24 / 7)
Availability

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards	Flammable gases, Category 1A	H220
	Gases under pressure : Liquefied gas	H280

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS02 GHS04

Signal word (CLP) : Danger

Hazard statements (CLP) : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

- Prevention : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Response : P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - In case of leakage, eliminate all ignition sources.
P381 - In case of leakage, eliminate all ignition sources.
- Storage : P403 - Store in a well-ventilated place.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

Asphyxiant in high concentrations.
Contact with liquid may cause cold burns/frostbite.
These high concentrations are within the flammability range.
Not classified as PBT or vPvB.
The substance/mixture has no endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	Composition [V-%]:	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Butane	CAS-No.: 106-97-8 EC-No.: 203-448-7 EC Index-No.: 601-004-00-0 REACH registration No: 01-2119474691-32	100	Flam. Gas 1A, H220 Press. Gas (Liq.), H280

Contains no other components or impurities which will influence the classification of the product.

3.2. Mixtures Not established.

SECTION 4: First aid measures

4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.
- 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.
See section 11.

4.3. Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Shutting off the source of the gas is the preferred method of control.
- Unsuitable extinguishing media : Do not use water jet to extinguish.
  Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products : Carbon monoxide.

5.3. Advice for firefighters

Specific methods : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.
Move containers away from the fire area if this can be done without risk.

Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus.
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Act in accordance with local emergency plan.
Try to stop release.
Evacuate area.
Eliminate ignition sources.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Stay upwind.
See section 8 of the SDS for more information on personal protective equipment

For emergency responders : Monitor concentration of released product.
Consider the risk of potentially explosive atmospheres.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
See section 5.3 of the SDS for more information.

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

Safe use of the product :

Do not breathe gas.
Avoid release of product into atmosphere.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Only experienced and properly instructed persons should handle gases under pressure.
Consider pressure relief device(s) in gas installations.
Ensure the complete gas system was (or is regularily) checked for leaks before use.
Do not smoke while handling product.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Avoid suck back of water, acid and alkalis.
Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment.
Purge air from system before introducing gas.
Take precautionary measures against static discharge.
Keep away from ignition sources (including static discharges).
Consider the use of only non-sparking tools.
Ensure equipment is adequately earthed.

Safe handling of the gas receptacle :

Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Protect containers 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 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 contaminants 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 content of the container.
Suck back of water into the container must be prevented.
Open valve slowly to avoid pressure shock.

7.2. Conditions for safe storage, including any incompatibilities

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

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Butane (106-97-8)	
Austria - Occupational Exposure Limits	
Local name	Butan (beide Isomeren): n-Butan (R 600)
MAK (mg/m³)	1900 mg/m³
MAK (OEL TWA) [ppm]	800 ppm
MAK (OEL STEL)	3800 mg/m³
MAK (OEL STEL) [ppm]	1600 ppm
Belgium - Occupational Exposure Limits	
Local name	Hydrocarbures aliphatiques sous forme gazeuse : (Alcanes C1-C4) # Alifatische koolwaterstoffen in gas-vorm : Alkanen (C1-C4)
OEL TWA [ppm]	1000 ppm
Bulgaria - Occupational Exposure Limits	
Local name	n-Бутан
OEL TWA	1900 mg/m³
Denmark - Occupational Exposure Limits	
Local name	n-Butan
OEL TWA [1]	1200 mg/m³
OEL TWA [2]	500 ppm
Estonia - Occupational Exposure Limits	
Local name	n-butaan
OEL TWA	1500 mg/m³
OEL TWA [ppm]	800 ppm
Finland - Occupational Exposure Limits	
Local name	n-Butaani
HTP (OEL TWA) [2]	800 ppm
HTP (OEL STEL) [ppm]	1000 ppm
France - Occupational Exposure Limits	
Local name	n-Butane
VME (OEL TWA)	1900 mg/m³
VME (OEL TWA) [ppm]	800 ppm
Remark	Valeurs recommandées/admises
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Butan

AGW (OEL TWA) [1]	2400 mg/m³
AGW (OEL TWA) [2]	1000 ppm
Remark	DFG
Greece - Occupational Exposure Limits	
OEL TWA	2350 mg/m³
OEL TWA [ppm]	1000 ppm
Hungary - Occupational Exposure Limits	
Local name	n-BUTÁN
AK (OEL TWA)	2350 mg/m³
CK (OEL STEL)	9400 mg/m³
Ireland - Occupational Exposure Limits	
Local name	Butane
OEL TWA [2]	1000 ppm
Latvia - Occupational Exposure Limits	
Local name	Butāns
OEL TWA	300 mg/m³
Poland - Occupational Exposure Limits	
Local name	Butan (n-butan)
NDS (OEL TWA)	1900 mg/m³
NDSCh (OEL STEL)	3000 mg/m³
Slovenia - Occupational Exposure Limits	
Local name	butan
OEL TWA	2400 mg/m³
OEL TWA [ppm]	1000 ppm
OEL STEL	9600 mg/m³
OEL STEL [ppm]	4000 ppm
United Kingdom - Occupational Exposure Limits	
Local name	Butane
WEL TWA (OEL TWA) [1]	1450 mg/m³
WEL TWA (OEL TWA) [2]	600 ppm
WEL STEL (OEL STEL)	1810 mg/m³
WEL STEL (OEL STEL) [ppm]	750 ppm
Remark	Carc (Capable of causing cancer and/or heritable genetic damage. See paragraphs 49–51), (only applies if Butane contains more than 0.1% of buta-1,3-diene)

Iceland - Occupational Exposure Limits	
Local name	n- Bútan
OEL TWA	1200 mg/m³
OEL TWA [ppm]	500 ppm
Norway - Occupational Exposure Limits	
Local name	Butan
Grenseverdi (OEL TWA) [1]	600 mg/m³
Grenseverdi (OEL TWA) [2]	250 ppm
Switzerland - Occupational Exposure Limits	
Local name	n-Butan
MAK (OEL TWA) [1]	1900 mg/m³
MAK (OEL TWA) [2]	800 ppm
KZGW (OEL STEL)	7600 mg/m³
KZGW (OEL STEL) [ppm]	3200 ppm
Remark	ZNS KT
USA - ACGIH - Occupational Exposure Limits	
Local name	Butane, all isomers
ACGIH OEL STEL [ppm]	1000 ppm

Butane (106-97-8)	
Austria - Occupational Exposure Limits	
Local name	Butan (beide Isomeren): n-Butan (R 600)
MAK (mg/m³)	1900 mg/m³
MAK (OEL TWA) [ppm]	800 ppm
MAK (OEL STEL)	3800 mg/m³
MAK (OEL STEL) [ppm]	1600 ppm
Belgium - Occupational Exposure Limits	
Local name	Hydrocarbures aliphatiques sous forme gazeuse : (Alcanes C1-C4) # Alifatische koolwaterstoffen in gas-vorm : Alkanen (C1-C4)
OEL TWA [ppm]	1000 ppm
Bulgaria - Occupational Exposure Limits	
Local name	n-Бутан
OEL TWA	1900 mg/m³
Denmark - Occupational Exposure Limits	
Local name	n-Butan
OEL TWA [1]	1200 mg/m³

OEL TWA [2]	500 ppm
Estonia - Occupational Exposure Limits	
Local name	n-butaan
OEL TWA	1500 mg/m³
OEL TWA [ppm]	800 ppm
Finland - Occupational Exposure Limits	
Local name	n-Butaani
HTP (OEL TWA) [2]	800 ppm
HTP (OEL STEL) [ppm]	1000 ppm
France - Occupational Exposure Limits	
Local name	n-Butane
VME (OEL TWA)	1900 mg/m³
VME (OEL TWA) [ppm]	800 ppm
Remark	Valeurs recommandées/admises
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Butan
AGW (OEL TWA) [1]	2400 mg/m³
AGW (OEL TWA) [2]	1000 ppm
Remark	DFG
Greece - Occupational Exposure Limits	
OEL TWA	2350 mg/m³
OEL TWA [ppm]	1000 ppm
Hungary - Occupational Exposure Limits	
Local name	n-BUTÁN
AK (OEL TWA)	2350 mg/m³
CK (OEL STEL)	9400 mg/m³
Ireland - Occupational Exposure Limits	
Local name	Butane
OEL TWA [2]	1000 ppm
Latvia - Occupational Exposure Limits	
Local name	Butāns
OEL TWA	300 mg/m³
Poland - Occupational Exposure Limits	
Local name	Butan (n-butan)
NDS (OEL TWA)	1900 mg/m³

NDSCh (OEL STEL)	3000 mg/m³
Slovenia - Occupational Exposure Limits	
Local name	butan
OEL TWA	2400 mg/m³
OEL TWA [ppm]	1000 ppm
OEL STEL	9600 mg/m³
OEL STEL [ppm]	4000 ppm
United Kingdom - Occupational Exposure Limits	
Local name	Butane
WEL TWA (OEL TWA) [1]	1450 mg/m³
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WEL STEL (OEL STEL) [ppm]	750 ppm
Remark	Carc (Capable of causing cancer and/or heritable genetic damage. See paragraphs 49–51), (only applies if Butane contains more than 0.1% of buta-1,3-diene)
Iceland - Occupational Exposure Limits	
Local name	n- Bútan
OEL TWA	1200 mg/m³
OEL TWA [ppm]	500 ppm
Norway - Occupational Exposure Limits	
Local name	Butan
Grenseverdi (OEL TWA) [1]	600 mg/m³
Grenseverdi (OEL TWA) [2]	250 ppm
Switzerland - Occupational Exposure Limits	
Local name	n-Butan
MAK (OEL TWA) [1]	1900 mg/m³
MAK (OEL TWA) [2]	800 ppm
KZGW (OEL STEL)	7600 mg/m³
KZGW (OEL STEL) [ppm]	3200 ppm
Remark	ZNS KT
USA - ACGIH - Occupational Exposure Limits	
Local name	Butane, all isomers
ACGIH OEL STEL [ppm]	1000 ppm

DNEL (Derived-No Effect Level) : None established.

PNEC (Predicted No-Effect Concentration) : None established.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Product to be handled in a closed system.
Systems under pressure should be regularly checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Gas detectors should be used when flammable gases/vapours may be released.
Consider the use of a work permit system e.g. for maintenance activities.

8.2.2. Individual protection measures, e.g. personal protective equipment

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:
PPE compliant to the recommended EN/ISO standards should be selected.

• Eye/face protection : Wear goggles when transfilling or breaking transfer connections.
Standard EN 166 - Personal eye-protection - specifications.

• Skin protection

- Hand protection : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risk, performance level 1 or higher.
Wear cold insulating gloves when transfilling or breaking transfer connections.
Standard EN 511 - Cold insulating gloves.

- Other : Consider the use of flame resistant anti-static safety clothing.
Standard EN ISO 14116 - Limited flame spread materials.
Standard EN 1149-5 - Protective clothing: Electrostatic properties.
Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

• Respiratory protection : Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.

• Thermal hazards : None in addition to the above sections.

8.2.3. Environmental exposure controls

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

Appearance		
- Physical state at 20°C / 101.3kPa	:	Gas
- Colour	:	Colourless.
Odour	:	Odourless. Odour threshold is subjective and inadequate to warn of overexposure.
pH	:	Not applicable for gases and gas mixtures.
Melting point / Freezing point	:	-138 °C -138 °C
Boiling point	:	-0.5 °C
Flash point	:	Not applicable for gases and gas mixtures.
Flammability	:	Extremely flammable gas
Explosive limits	:	1.4 – 9.4 vol %
Lower explosion limit	:	Not available
Upper explosion limit	:	Not available
Vapour pressure [20°C]	:	2 bar(a)
Vapour pressure [50°C]	:	5 bar(a)
Density	:	Not applicable
Vapour density	:	Not applicable for gases and gas mixtures.

Relative density, liquid (water=1)	:	0.6
Relative density, gas (air=1)	:	2.1
Water solubility	:	88 mg/l
Partition coefficient n-octanol/water (Log Kow)	:	2.89
Auto-ignition temperature	:	365 °C
Decomposition temperature	:	Not applicable.
Viscosity, kinematic	:	Not applicable for gases and gas mixtures.
Particle characteristics	:	Not applicable for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Oxidising properties	:	No oxidising properties.
Tci	:	3.6 %
Critical temperature [°C]	:	152 °C

9.2.2. Other safety characteristics

Molar mass	:	58 g/mol
Gas group	:	Press. Gas (Liq.)
Other data	:	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None.
Can form explosive mixture with air.
May react violently with oxidants.

Reactivity : This mixture contains components with the following reactivity : Can form explosive mixture with air. May react violently with oxidants.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid moisture in installation systems.

10.5. Incompatible materials

Air, Oxidisers.
For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity : Toxicological effects not expected from this product if occupational exposure limit values are not exceeded.

Skin corrosion/irritation : No known effects from this product.

Serious eye damage/irritation	:	No known effects from this product.
Respiratory or skin sensitisation	:	No known effects from this product.
Germ cell mutagenicity	:	No known effects from this product.
Carcinogenicity	:	No known effects from this product.
Toxic for reproduction : Fertility	:	No known effects from this product.
Toxic for reproduction : unborn child	:	No known effects from this product.
STOT-single exposure	:	No known effects from this product.
STOT-repeated exposure	:	No known effects from this product.
Aspiration hazard	:	Not applicable for gases and gas mixtures.

11.2. Information on other hazards

Other information : The substance/mixture has no endocrine disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

Assessment	:	Classification criteria are not met.
EC50 48h - Daphnia magna [mg/l]	:	14.2 mg/l
EC50 72h - Algae [mg/l]	:	7.7 mg/l
LC50 96 h - Fish [mg/l]	:	24.1 mg/l

Butane (106-97-8)	
EC50 48h - Daphnia magna [mg/l]	14.2 mg/l
EC50 72h - Algae [mg/l]	7.7 mg/l
LC50 96 h - Fish [mg/l]	24.1 mg/l

12.2. Persistence and degradability

Assessment : No data available.

12.3. Bioaccumulative potential

Assessment : Not expected to bioaccumulate due to the low log Kow (log Kow < 4).
See section 9.

12.4. Mobility in soil

Assessment : Because of its high volatility, the product is unlikely to cause ground or water pollution.
Partition into soil is unlikely.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

The substance/mixture has no endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects	:	No known effects from this product.
Effect on the ozone layer	:	No effect on the ozone layer.
Global warming potential [CO2=1]	:	4
Effect on global warming	:	Contains greenhouse gas(es). When discharged in large quantities may contribute to the greenhouse effect.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.
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.
Ensure that the emission levels from local regulations or operating permits are not exceeded.
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at http://www.eiga.org for more guidance on suitable disposal methods.
Return unused product in original container to supplier.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN

UN-No. : 1011

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) : BUTANE
Transport by air (ICAO-TI / IATA-DGR) : Butane
Transport by sea (IMDG) : BUTANE

14.3. Transport hazard class(es)

Labelling :

2.1 : Flammable gases.

Transport by road/rail (ADR/RID)

Class : 2
Classification code : 2F
Hazard identification number : 23
Tunnel Restriction : B/D - Tank carriage : Passage forbidden through tunnels of category B, C, D and E. Other carriage : Passage forbidden through tunnels of category D and E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.1

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.1
Emergency Schedule (EmS) - Fire : F-D
Emergency Schedule (EmS) - Spillage : S-U

14.4. Packing group

Transport by road/rail (ADR/RID) : Not established.
Transport by air (ICAO-TI / IATA-DGR) : Not established.
Transport by sea (IMDG) : Not established.

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None.
Transport by air (ICAO-TI / IATA-DGR) : None.
Transport by sea (IMDG) : None.

14.6. Special precautions for user

Packing Instruction(s)

Transport by road/rail (ADR/RID) : P200
Transport by air (ICAO-TI / IATA-DGR)
Passenger and Cargo Aircraft : Forbidden.
Cargo Aircraft only : 200.
Transport by sea (IMDG) : P200

Special transport precautions : 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 there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

Restrictions on use : None.
Seveso Directive : 2012/18/EU (Seveso III) : Covered.

National regulations

Ensure all national/local regulations are observed.

Germany

Water hazard class (WGK) : WGK nwg, Non-hazardous to water (Classification according to AwSV)
National Rules and Recommendations : [German regulations] BetriebssicherheitsV mit TRBSen insbesondere TRBS 3145 / TRGS 725 Ortsbewegliche Druckgasbehälter", TRBS 2141, BGRegel 500 Teil 2.33: "Umgang mit Gasen", GefahrstoffV mit Technischen Regeln Gefährliche Stoffe TRGS insbesondere TRGS 407 "Tätigkeiten mit Gasen - Gefährdungsbeurteilung", TRGS 400, 500, 510, 900." BGR 104, TRBS 2152.

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : The substance is not listed
SZW-lijst van reprotoxische stoffen – Vruchtbaarheid : The substance is not listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling : The substance is not listed

Denmark

Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

Switzerland

Storage class (LK) : LK 2 - Liquefied or pressurized gases

15.2. Chemical safety assessment

A CSA does not need to be carried out for this product.

SECTION 16: Other information

Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.

Abbreviations and acronyms : ATE - Acute Toxicity Estimate
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
EINECS - European Inventory of Existing Commercial Chemical Substances
CAS# - Chemical Abstract Service number
PPE - Personal Protection Equipment
LC50 - Lethal Concentration to 50 % of a test population
RMM - Risk Management Measures
PBT - Persistent, Bioaccumulative and Toxic
vPvB - Very Persistent and Very Bioaccumulative
STOT- SE : Specific Target Organ Toxicity - Single Exposure
CSA - Chemical Safety Assessment
EN - European Standard
UN - United Nations
ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road
IATA - International Air Transport Association
IMDG code - International Maritime Dangerous Goods
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
WGK - Water Hazard Class
STOT - RE : Specific Target Organ Toxicity - Repeated Exposure
UFI : Unique Formula Identifier

Training advice : Ensure operators understand the flammability hazard.

Further information : Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).
Key literature references and sources of data are maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at http://www.Eiga.eu .

Full text of H- and EUH-statements	
Flam. Gas 1A	Flammable gases, Category 1A
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
Press. Gas (Liq.)	Gases under pressure : Liquefied gas

DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press.
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.

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