C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 12/03/2015 Revision date: 02/07/2024 Supersedes version of: 12/01/2021 Version: 1.5

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

1.1. Product identifier

Product form : Mixture
Name : C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Product code : 000010022680
Other means of identification : Propellant gas, liquified gas propane, camping gas

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

1.2.1. Relevant identified uses

Relevant identified uses : Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use, under controlled conditions.
Perform risk assessment prior to use.

Use of the substance/mixture : Fuel gas for welding, cutting, heating, brazing and soldering applications.
Propellant

1.2.2. Uses advised against

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

Linde Gas GmbH
Carl-von-Linde-Platz 1
A-4651 Stadl-Paura
Austria
T +43 50 4273
office@at.linde-gas.com

1.4. Emergency telephone number

Emergency number : UMCO/NCEC: +44 1865 407333 (English); +49 89 220 61012 (German)

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

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

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.
- Response : P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - In case of leakage, eliminate all ignition sources.
- Storage : P403 - Store in a well-ventilated place.

2.3. Other hazards

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

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Propane (Main constituent)	CAS-No.: 74-98-6 EC-No.: 200-827-9 EC Index-No.: 601-003-00-5 REACH-no: 01-2119486944-21	97.9	Flam. Gas 1A, H220 Press. Gas (Liq.), H280
Butane-N (Component)	CAS-No.: 106-97-8 EC-No.: 203-448-7 EC Index-No.: 649-200-00-5 REACH-no: 01-2119474691-32	2	Flam. Gas 1A, H220 Press. Gas (Liq.), H280

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Isobutane (Component)	CAS-No.: 75-28-5 EC-No.: 200-857-2 EC Index-No.: 601-004-00-0 REACH-no: 01-2119485395-27	0.1	Flam. Gas 1A, H220 Press. Gas (Liq.), H280

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

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after 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.

First-aid measures after skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

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.

5.2. Special hazards arising from the substance or mixture

Reactivity in case of fire : No reactivity hazard other than the effects described in sub-sections below.

Specific hazards : Exposure to fire may cause containers to rupture/explode.

Hazardous combustion products : Carbon monoxide.

5.3. Advice for firefighters

Specific methods : Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.
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.
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 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : 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.

6.1.2. For emergency responders

Emergency procedures : 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

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

6.4. Reference to other sections

See also sections 8 and 13.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product	:	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. 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. Do not breathe gas. Avoid release of product into work area.
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

Conditions for safe storage, including any incompatibilities : 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.
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.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

Butane-N (106-97-8)	
Austria - Occupational Exposure Limits	
Local name	Butan (beide Isomeren): n-Butan (R 600)
MAK (OEL TWA)	1900 mg/m³
MAK (OEL TWA) [ppm]	800 ppm
MAK (OEL STEL)	3800 mg/m³ (3x 60(Mow) min)
MAK (OEL STEL) [ppm]	1600 ppm (3x 60(Mow) min)
Regulatory reference	BGBl. II Nr. 156/2021

Propane (74-98-6)	
Austria - Occupational Exposure Limits	
Local name	Propan (R 290)
MAK (OEL TWA)	1800 mg/m³
MAK (OEL TWA) [ppm]	1000 ppm
MAK (OEL STEL)	3600 mg/m³ (3x 60(Mow) min)
MAK (OEL STEL) [ppm]	2000 ppm (3x 60(Mow) min)
Regulatory reference	BGBl. II Nr. 156/2021

Isobutane (75-28-5)	
Austria - Occupational Exposure Limits	
Local name	Butan (beide Isomeren): Isobutan (2-Methylpropan) (R 600a)

Isobutane (75-28-5)	
MAK (OEL TWA)	1900 mg/m³
MAK (OEL TWA) [ppm]	800 ppm
MAK (OEL STEL)	3800 mg/m³ (3x 60(Mow) min)
MAK (OEL STEL) [ppm]	1600 ppm (3x 60(Mow) min)
Regulatory reference	BGBl. II Nr. 156/2021

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %	
DNEL/DMEL (additional information)	
Additional information	None established.
PNEC (additional information)	
Additional information	None established.

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:
Provide adequate general and local exhaust ventilation. Product to be handled in a closed system. 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. Systems under pressure should be regularily checked for leakages. Ensure exposure is below occupational exposure limits (where available).

8.2.2. Personal protection equipment

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.

8.2.2.1. Eye and face protection

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

8.2.2.2. Skin protection

Hand protection:
Wear cold insulating gloves when transfilling or breaking transfer connections.
Standard EN 511 - Cold insulating gloves, performance level 1 or higher. Recommended types include insulated gauntlets or gloves specifically selected to prevent liquid penetration and ingress of cryogenic liquids and to provide mechanical resistance.
Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Other skin protection

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.

Other information:

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.

8.2.2.3. Respiratory protection

Respiratory protection:

Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
When indicated by a risk assessment, Respiratory Protective Equipment must be used. 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.

8.2.2.4. Thermal hazards

Thermal hazard protection:

None in addition to the above sections.

8.2.3. Environmental exposure controls

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	:	Gas
Colour	:	Colourless.
Form	:	Liquefied gas
Odour	:	Odour threshold is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour: Stenchant often added. Sweetish.
Odour threshold	:	Odour threshold is subjective and inadequate to warn of overexposure.
Melting point	:	Not applicable for gases and gas mixtures.
Freezing point	:	Not applicable
Boiling point	:	Not applicable for gas mixtures. It is technically not possible to determine the boiling point or range of this mixture. Component with lowest boiling point: Propane -42.1 °C
Flammability	:	Extremely flammable gas.
Oxidising properties	:	No oxidising properties.
Explosive limits	:	Flammability range not available.
Lower explosion limit	:	Calculated value: 1.69%
Upper explosion limit	:	No test data or calculation method available.
Flash point	:	Not applicable for gases and gas mixtures.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Auto-ignition temperature	:	Not known. Auto ignition temperature for mixtures is not available. Component with lowest auto-ignition temperature: Butane-N 365 °C
Decomposition temperature	:	Not applicable.
pH	:	Not applicable for gases and gas mixtures.
Viscosity, kinematic	:	Not applicable for gases and gas mixtures.
Viscosity, dynamic	:	Not applicable for gases and gas mixtures.
Solubility	:	Water: Mixture is partially soluble in water
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Partition coefficient n-octanol/water (Log Pow)	:	Not applicable for gas mixtures.
Vapour pressure	:	Not known.
Vapour pressure at 50°C	:	Not available
Density	:	Not applicable
Relative density	:	Not applicable
Relative vapour density at 20°C	:	Not applicable for gases and gas mixtures.
Relative gas density	:	Heavier than air.
Particle characteristics	:	Not applicable Not applicable for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

Gas group	:	Press. Gas (Liq.)
Additional 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

Data for mixtures are not available.
This mixture contains components with the following reactivity : Can form explosive mixture with air. May react violently with oxidants.

10.2. Chemical stability

Stable under normal conditions.

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Avoid moisture in installation systems.

10.3. Possibility of hazardous reactions

Can form explosive mixture with air. May react violently with oxidants.

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.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

SECTION 11: Toxicological information

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

Acute toxicity : Classification criteria are not met.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

Propane (74-98-6)	
LC50 Inhalation - Rat [ppm]	20000 ppm/4h

Isobutane (75-28-5)	
LC50 Inhalation - Rat [ppm]	> 800000 ppm

Skin corrosion/irritation : No known effects from this product.
pH: Not applicable for gases and gas mixtures.

Butane-N (106-97-8)	
pH	Not applicable for gases and gas mixtures.

Propane (74-98-6)	
pH	Not applicable for gases and gas mixtures.

Isobutane (75-28-5)	
pH	Not applicable for gases and gas mixtures.

Serious eye damage/irritation : No known effects from this product.
pH: Not applicable for gases and gas mixtures.

Butane-N (106-97-8)	
pH	Not applicable for gases and gas mixtures.

Propane (74-98-6)	
pH	Not applicable for gases and gas mixtures.

Isobutane (75-28-5)	
pH	Not applicable for gases and gas mixtures.

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.

Reproductive toxicity : Not classified

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.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %	
Viscosity, kinematic	Not applicable for gases and gas mixtures.

Butane-N (106-97-8)	
Viscosity, kinematic	No reliable data available.
Hydrocarbon	Yes

Propane (74-98-6)	
Viscosity, kinematic	0.16 mm²/s
Hydrocarbon	Yes

Isobutane (75-28-5)	
Viscosity, kinematic	Not applicable for gases and gas mixtures.
Hydrocarbon	Yes

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties : The substance/mixture has no endocrine disrupting properties.

11.2.2. Other information

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Assessment : Classification criteria are not met.

Hazardous to the aquatic environment, short–term (acute) : Not classified

Hazardous to the aquatic environment, long–term (chronic) : Not classified

Not rapidly degradable

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %	
LC50 96 h - Fish [mg/l]	No data available.
EC50 48h - Daphnia magna [mg/l]	No data available.
EC50 72h - Algae [mg/l]	No data available.

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

Propane (74-98-6)	
LC50 96 h - Fish [mg/l]	49.9 mg/l
EC50 48h - Daphnia magna [mg/l]	27.1 mg/l
EC50 72h - Algae [mg/l]	11.9 mg/l

Isobutane (75-28-5)	
LC50 - Fish [1]	24.11 mg/l Species: Various; Method: QSAR; Remark: QSAR, Key study;
LC50 - Fish [2]	14.22 ml/l Species: Daphnid; Method: QSAR; Remark: QSAR; Exp. Time: 48h
LC50 96 h - Fish [mg/l]	24.11 - 147.54 mg/l
EC50 48h - Daphnia magna [mg/l]	14.22 - 69.43 mg/l
EC50 72h - Algae [mg/l]	7.71 - 19.37 mg/l

12.2. Persistence and degradability

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %	
Assessment	No data available.
Butane-N (106-97-8)	
Assessment	The substance is readily biodegradable. Unlikely to persist.
Propane (74-98-6)	
Assessment	The substance is readily biodegradable. Unlikely to persist.
Isobutane (75-28-5)	
Assessment	The substance is readily biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %	
Partition coefficient n-octanol/water (Log Pow)	Not applicable for gas mixtures.
Assessment	No data available.
Butane-N (106-97-8)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable for gas mixtures.
Partition coefficient n-octanol/water (Log Kow)	2.89
Propane (74-98-6)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable for gas mixtures.
Partition coefficient n-octanol/water (Log Kow)	2.36
Isobutane (75-28-5)	
Partition coefficient n-octanol/water (Log Pow)	Not applicable for gas mixtures.
Partition coefficient n-octanol/water (Log Kow)	2.76
	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). See section 9.

12.4. Mobility in soil

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %	
Assessment	Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.

Butane-N (106-97-8)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.

Propane (74-98-6)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution. Partition into soil is unlikely.

Isobutane (75-28-5)	
Ecology - soil	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

Other adverse effects : No known effects from this product.
Assessment : The substance/mixture has no endocrine disrupting properties.
Adverse effects on the environment caused by 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.
Effect on global warming : Contains greenhouse gas(es).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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. 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.eu for more guidance on suitable disposal methods. Do not discharge into any place where its accumulation could be dangerous. 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

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 1965	UN 1965	UN 1965	UN 1965	UN 1965
14.2. UN proper shipping name				
HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane)	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane)	Hydrocarbon gas mixture, liquefied, n.o.s. (Propane, Isobutane)	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane)	HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane)
Transport document description				
UN 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane), 2.1, (B/D)	UN 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane), 2	UN 1965 Hydrocarbon gas mixture, liquefied, n.o.s. (Propane, Isobutane), 2.1	UN 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane), 2.1	UN 1965 HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (Propane, Isobutane), 2.1
14.3. Transport hazard class(es)				
2.1	2.1	2.1	2.1	2.1
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

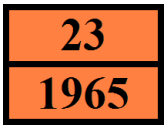
Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment, Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency, Before transporting product containers: - 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.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Overland transport

Classification code (ADR)	:	2F
Special provisions (ADR)	:	274, 662, 392, 583, 652, 674
Limited quantities (ADR)	:	0
Excepted quantities (ADR)	:	E0
Packing instructions (ADR)	:	P200
Vehicle for tank carriage	:	FL
Transport category (ADR)	:	2
Hazard identification number (Kemler No.)	:	23
Orange plates	:	
Tunnel restriction code (ADR)	:	B/D

Transport by sea

Special provisions (IMDG)	:	274, 392
Limited quantities (IMDG)	:	0
Excepted quantities (IMDG)	:	E0
Packing instructions (IMDG)	:	P200
Tank instructions (IMDG)	:	T50
EmS-No. (Fire)	:	F-D
EmS-No. (Spillage)	:	S-U
Stowage category (IMDG)	:	D, E
Properties and observations (IMDG)	:	Liquefied flammable hydrocarbon gas obtained from natural gas or by distillation of mineral oils or coal, etc. May contain propane, cyclopropane, propylene, butane, butylene, etc., in varying proportions. Heavier than air.

Air transport

PCA Excepted quantities (IATA)	:	E0
PCA Limited quantities (IATA)	:	FORBIDDEN
PCA limited quantity max net quantity (IATA)	:	FORBIDDEN
PCA packing instructions (IATA)	:	FORBIDDEN
PCA max net quantity (IATA)	:	FORBIDDEN
CAO packing instructions (IATA)	:	200
CAO max net quantity (IATA)	:	150kg
Special provisions (IATA)	:	A1, A807
ERG code (IATA)	:	10L

Inland waterway transport

Classification code (ADN)	:	2F
Special provisions (ADN)	:	274, 662, 392, 583, 674
Limited quantities (ADN)	:	0
Excepted quantities (ADN)	:	E0
Carriage permitted (ADN)	:	T
Equipment required (ADN)	:	PP, EX, A
Ventilation (ADN)	:	VE01
Number of blue cones/lights (ADN)	:	1

Rail transport

Classification code (RID)	:	2F
Special provisions (RID)	:	274, 662, 392, 583, 674
Limited quantities (RID)	:	0

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Excepted quantities (RID)	:	E0
Packing instructions (RID)	:	P200
Mixed packing provisions (RID)	:	MP9
Portable tank and bulk container instructions (RID)	:	T50(M)
Tank codes for RID tanks (RID)	:	PxBN(M)
Special provisions for RID tanks (RID)	:	TU38, TE22, TA4, TT9, TM6
Transport category (RID)	:	2
Special provisions for carriage - Loading, unloading and handling (RID)	:	CW9, CW10, CW36
Colis express (express parcels) (RID)	:	CE3
Hazard identification number (RID)	:	23

14.7. Maritime transport in bulk according to IMO instruments

IBC code : Not applicable.

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

EU restriction list (REACH Annex XVII)		
Reference code	**Applicable on**	**Entry title or description**
40.	Butane-N ; Propane ; Isobutane	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (1005/2009)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 1005/2009 on substances that deplete the ozone layer)

VOC Directive (2004/42)

Restrictions on use :

Seveso Directive (Disaster Risk Reduction)

Seveso Directive : 2012/18/EU (Seveso III) : Covered.

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Seveso III Part II (Named dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	50	200

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Ensure all national/local regulations are observed.
Safety data sheet in accordance with commission regulation (EU) No 2020/878.
Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work
Directive 2016/425/EEC on personal protective equipment
Directive 2014/34/EU on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)
Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.
This Safety Data Sheet has been produced to comply with Regulation (EU) 2015/830.

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:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	ADR - Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	ATE - Acute Toxicity Estimate
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAO	Cargo Aircraft only / Cargo Aircraft only
CAS-No.	Chemical Abstract Service number
CLP	CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	CSA - Chemical Safety Assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC	European Inventory of Existing Commercial Chemical Substances

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Abbreviations and acronyms:	
ED	Endocrine disrupting properties
EINECS	EINECS - European Inventory of Existing Commercial Chemical Substances
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
IOELV	Indicative Occupational Exposure Limit Value
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PCA	Passenger and Cargo Aircraft / Passenger and Cargo Aircraft
PNEC	Predicted No-Effect Concentration
PPE	PPE - Personal Protection Equipment
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
RMM	RMM - Risk Management Measures
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TRGS	Technical Rules for Hazardous Substances
STOT-RE	Specific Target Organ Toxicity-Repeated Exposure
STOT-SE	Specific Target Organ Toxicity-Single Exposure
UFI	Unique Formula Identifier
UN	UN - United Nations
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

C4H10 1000 PPM;C4H10 2 %;C3H8 97,9 %

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878

Training advice	:	Ensure operators understand the flammability hazard.
Other information	:	Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Data is maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at : http://www.eiga.eu. Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).

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

The classification complies with	:	ATP 12
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.

Safety Data Sheet (SDS), EU AT

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

End of document