SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH) amended by Regulation (EU) 2020/878

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

1.1 Product identifier:

Trade name:	**BUTANE-PROPANE MIXTURE GAS**
Product characteristics:	**GAS CARTRIDGE, CONTAINING 500g OF BUTANE-PROPANE MIXTURE**
Product trade name:	**GreenBlue 500g gas cartridge. Certificate: Pi 0437, compliant with EN417, propane-butane, range -10°C to +40°C, 7/16" threaded valve GB499**
Application of substance:	**FOR USE ONLY WITH PORTABLE GAS APPLIANCES**

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

Product Type: **Non-Refillable metallic gas cartridges, containing 500g of Butane-Propane Mixture gas**

Relevant identified uses:	Use as fuel gases for gas torches and gas appliances complying to EN 521:2019 Standard Contact supplier for more information on uses.
PROFESSIONAL USES	Use as fuel.
CONSUMER USES	Use as fuel.
Uses advised against:	Contains gas under pressure; may explode if heated. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

1.3 Details of the supplier of the safety data sheet

Company name:	Centrumelektroniki.EU sp. z o.o.
Street/P.O. Box:	Korfantego 7
Postal code, city:	42-600 Tarnowskie Góry, PL,
Website:	centrumelektroniki.pl
Email	contact@centrumelektroniki.pl
Phone:	+48 32 284 7222

Department responsible for information:

Address:	Centrumelektroniki.EU sp. z o.o. 42-600
Postal code, city:	Tarnowskie Góry, PL,
Phone:	+48 32 284 7222
Email	contact@centrumelektroniki.pl

1.4 Emergency telephone number

European Emergency Tel.:	112
National Poisons Information Centre (NVIC)	+31 (0) 30 274 8888
Belgian Poison Centre	+32 (0) 70 245 245
Poison Centre (Berlin) Germany Telephone: GIZ-Nord, Göttingen, Germany	+49 (0) 30 19240
Poison Control Centre (Orfila) France	+33 (0) 1 45 42 59 59
Poison Information Service (Spain)	+34 (0) 91 562 04 20

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008

Flam. Gas 1A**;**	H220	**Extremely flammable gas.**
Press.Gas (Liq.);	H280	**Contains gas under pressure; may explode if heated.**

Additionally, the classification provided by companies to ECHA in REACH registrations identifies that this substance **contains gas under pressure and may explode if heated**.

2.2 Label elements

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

Hazard pictograms:

	
GHS02: **Danger**	GHS04: **Compressed Gas** optional

Note: if the hazard pictogram “GHS02” or “GHS06” applies, the use of the hazard pictogram “GHS04” shall be optional (Commission Regulation (EU) No 286/2011).

Signal word:	**Danger**	
Hazard category:	1 A	
Hazard statements:	H220	**Extremely flammable gas.**
Precautionary statements:	P102	**Keep out of reach of children.**
	P210	**Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.**
	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.**
	P410+P403	**Protect from sunlight. Store in a well-ventilated place.**

Additional labelling requirements (CLP supplemental hazard statement): None.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: The substance does not meet the criteria.

vPvB: The substance does not meet the criteria.

SECTION 3: Composition/information on ingredients

3.1. Substances

3.2. Mixtures

Description: Mixture consists of Butane (CAS nr: 106-97-8) hydrocarbons and Propane C3-4-rich, petroleum distillate (CAS No. 68512-91-4).

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Hazardous ingredients:					
Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrase M factor acute M factor chronic	Note
BUTANE	CAS nr: 106-97-8 EC nr.: 203-448-7 Index No.: 601-004-01-8	80%	Flam. Gas 1A, Press. Gas		
PROPANE Hydrocarbons, C3-4-rich, petroleum distillate	CAS nr: 68512-91-4 EC nr.: 270-990-9 Index No.:649-083-00-0 Reg.nr.: 01-2119485926-20-xxxx	20%	Flam.Gas 1A, Press. Gas		

Substances included in the list of Substances of Very High Concern (SVHC): None.
Contains no other components or impurities which will influence the classification of the product.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Take care of your own personal safety. Remove victims from hazardous area. Take off all contaminated clothing immediately. Keep patient warm and at rest. Do not leave victims unattended. WARNING BEFORE INTERVENTION: Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces. Take care to self-protect by avoiding becoming contaminated. Use approved positive pressure air supplied breathing apparatus with a full-face piece. Move contaminated patient(s) out of the dangerous area. Seek medical assistance - Show the material safety data sheet or label if possible. (Subject to applicability) A high hydrogen sulphide (H2S) and/or carbon monoxide (CO) content may cause specific hazard conditions.
Inhalation	Move victims into fresh air. Place person on side in stable position if unconscious. Do not leave the victim unattended. Keep person warm and at rest. If the casualty is unconscious, place in the recovery position. Call a doctor immediately. If breathing is difficult, give oxygen if possible, or assisted ventilation. In the event of cardiac arrest, (no pulse), apply cardiopulmonary resuscitation. (Subject to applicability) If there is any suspicion of inhalation of H_2S or

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	CO, rescuers must wear breathing apparatus, belt and safety rope, and follow rescue procedures. (1) Remove casualty to fresh air as quickly as possible. (2) Immediately begin artificial respiration if breathing has ceased. (3) Obtain medical advice for further treatment.
Skin contact	In the event of frostbite, rinse copiously with water. Do not remove clothing that adheres due to freezing. Cover with sterile dressing and seek medical advice. Immediately flush affected area with plenty of water. Continue for at least 15 minutes. If there are signs of frostbite, (blanching or redness of skin or burning or tingling sensation), do not rub, massage or compress the affected area. Send the casualty immediately to hospital.
Eye contact	Flush affected eye immediately with water at ambient temperature. Consult an ophthalmologist. Rinse opened eye for several minutes under running water. Then consult a doctor. Remove contact lenses, if possible. If there are signs of frostbite, pain, swelling, lachrimation or photophobia persists, or in case of damage from high pressure jets, the patient should be seen in a specialist health care facility.
Ingestion/Aspiration	Ingestion by swallowing is not considered a possible mode of exposure. Notes to physician Oxygen-displacing gas. No specific antidote known. cardio-vascular monitoring. Symptomatic treatment. Not considered a likely route of exposure. Frostbite to the lips and mouth may occur if in contact with the liquid.

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

Exposure to high concentrations may cause asphyxiation.
Contact with product in liquid form may cause frostbite (skin/eye).
Ingestion is not considered a likely route of exposure.

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

None further relevant information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Where possible stop the flow of gas, and if safe to do so. If the flow cannot be stopped allow the fire to burn out, whilst cooling containers and surroundings with a water spray. Water spray, foam, CO_2, dry powder. Extinguishing media which must not be used for safety reasons high volume water jet Specific hazards during fire fighting Heavier than air vapour.

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	Formation of flammable or explosive vapour/air mixtures possible. Keep all ignition sources out of area In case of fire cool endangered containers with water. Closed container may rupture if strongly heated. Special protective equipment for fire-fighters In the case of respirable dust and/or fumes, use self-contained breathing apparatus.
Suitable extinguishing media:	LARGE FIRE: Water spray. Water fog (specifically trained personnel only). Foam. SMALL FIRE: Carbon dioxide. Dry chemical powder. Dry sand. Fire fighting foam. Water spray or fog. Dry powder.
Unsuitable extinguishing media:	Carbon dioxide. Do not use water jet to extinguish. Do not use direct water jets on the burning product. Simultaneous use of foam and water on the same surface is to be avoided.

5.2. Special hazards arising from the substance or mixture

Specific hazards:	Exposure to fire may cause containers to rupture/explode. In case of insufficient cooling of containers: BLEVE (Boiling Liquid Expanding Vapour Explosion): Complete rupture of the container followed by ignition and explosion of the mass.
Hazardous combustion products:	Carbon Dioxide (CO_2). Carbon monoxide (CO). Unburned hydrocarbons(smoke).

5.3. Advice for firefighters

Specific methods:	In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.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. In confined space use self-contained breathing apparatus.
Special protective equipment for fire fighters:	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 137 - Self-contained open-circuit compressed air breathing

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	apparatus with full face mask. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters. Standard firefighting gear. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles. If it is impossible to put out the fire, withdraw from area and let fire burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.0 Personal precautions	Wear personal protective equipment; see section 8. Avoid contact with skin and eyes. Keep away from sources of ignition - No smoking. Heavier than air vapour. Ensure adequate ventilation. Ensure good room ventilation at floor level too. Eliminate possible causes of ignition if safe to do so (e.g. electricity, sparks, fires, flares). Prevent entry into waterways, sewers, basements or confined areas. Stop leak if safe to do so. Keep non-involved personnel away from the area of spillage. Alert emergency personnel. Enter area only if strictly necessary. A gas detector can be used to check for flammable gas or vapours. If required, notify relevant authorities according to applicable regulations.
6.1.1 For non-emergency personnel	Avoid direct contact with released material and breathing vapours. Stop all work that requires an open flame, stop all vehicles, and stop all machines and equipment that may cause sparks or flames. All equipment used when handling the product must be grounded. Stay upwind. Try to stop release. Evacuate area. 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. Eliminate ignition sources. Ensure adequate air ventilation. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Act in accordance with local emergency plan.
6.1.2 For emergency responders	Spillages of material generate large volumes of extremely flammable gas which is heavier than air and will accumulate in low areas or confined spaces. Cylinders or other containment vessels may explode under fire conditions -

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	use water spray to cool unopened containers. Do not allow run-off from fire fighting to enter drains or water courses – may cause explosion hazard in drains and may reignite. (Subject to applicability): When the presence of dangerous amounts of H2S and/or CO around the spilled product is suspected or proved, additional or special actions may be warranted, including access restrictions, use of special protection equipment, procedures and personnel training.

6.2. Environmental precautions

	Do not allow entrance in sewage water, drainage systems, stretches of water, soil. Avoid penetration into drainage system or in rooms situated at a lower level because of danger of explosion. Issue an immediate alarm report to the company environmental protection department if the product unintentionally leaves the production area. SPILLAGES ON TO LAND Prevent seepage into sewage system, workpits and cellars. Stop or contain leak at the source, if safe to do so. When inside buildings or confined spaces, ensure adequate ventilation. SPILLAGES IN WATER OR AT SEA Stop or contain leak at the source, if safe to do so. Spillages of liquid product in the water will likely result in a quick and complete vaporization of the product. Isolate the area. Prevent fire/explosion hazard for ships and other structures in the area, taking into account wind direction and speed, until the material is completely dispersed. Inform respective authorities in case of seepage into water course or sewage system

6.3. Methods and material for containment and cleaning up

6.3.1 For containment:	Control the spreading of the spillage. Taking special safety precautions Keep area evacuated and free from ignition sources until any spilled liquid has evaporated (ground free from frost).
6.3.2 For cleaning up:	Contain spillage – ventilate area and allow liquid to evaporate.
6.3.3 Other information:	Not available

6.4. Reference to other sections

	See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling - Safe handling advice	Wear personal protective equipment; see section 8. Avoid contact with skin and eyes. Provide good ventilation or extraction. Ensure good room ventilation at floor level too. Observe special instructions applicable to compressed gases.

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	Advice on protection against fire and explosion Take precautionary measures against static charges, keep away from sources of ignition. Explosion protection equipment required. Temperature class T 2 GENERAL INFORMATION Risk of explosive mixtures of vapour and air. Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products, are followed. Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation. Cleaning, inspection and maintenance of internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations. Consider the need for risk based health surveillance. (Subject to applicability) A specific assessment of inhalation risks from the presence of H2S and/or CO in tank headspaces, confined spaces, product residue, tank waste and waste water, and unintentional releases must be made to help determine controls appropriate to local circumstances.
7.1.1 Protective measures	Use only in well ventilated areas. Consider technical advances and process upgrades (including automation) for the elimination of releases. Drain down systems and clear transfer lines prior to breaking containment. Clean/flush equipment, where possible, prior to maintenance. Ensure safe systems of work or equivalent arrangements are in place to manage risks. Regularly inspect, test and maintain all control measures. Avoid all sources of ignition, oxidising agents, chlorine and hydrogen chloride or hydrogen fluoride. Use piping and equipment designed to withstand the pressures to be encountered. Use a check valve or other protective device to prevent reverse flow. Handle empty containers with care; vapour residue may be flammable. Take precautionary measures against static discharges, use proper bonding and/or grounding procedures.
7.1.2 Measures to protect the environment:	Spillages of material generate large volumes of extremely flammable gas which is heavier than air and will accumulate in low areas or confined spaces. Use explosion-proof apparatus / fittings and spark-proof tools. Use tools/equipment electrically bonded. Dispose of wastes safely.
7.1.3 Safe use of the product:	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.

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	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. Do not breathe gas. Avoid release of product into work area. Ensure equipment is adequately earthed.
7.1.4 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 were 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.
7.1.2 Advice on general occupational hygiene:	Do not eat, drink or smoke while using the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:	Store only in supplied cylinders or approved vessels. Cylinders should be secured vertical - and only transported in a secure position in a well ventilated vehicle or hand truck. Cylinders which have been are opened must be carefully resealed and kept upright. For maintenance work or conservation, emptied tanks should be purged, and blanketed with inert gas (i.e. nitrogen). The product must be stored in specially designed pressurized containers

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	(spherical containers, cylindrical containers, bottles, gas cartridges) according to relevant regulations. Requirements for storage areas and containers Keep containers tightly closed in a cool, well-ventilated place. Keep away from direct sunlight. Suitable materials (mild steel)
Further information about storage conditions:	Store in a cool location. Store in well-ventilated place.
Storage class:	2A
	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.
Advice on common storage	Observe prohibition against storing together!

7.3. Specific end use(s)

	Refer to Exposure Scenarios, attached as Annex.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational Exposure / Biological Limit Values	National Occupational Exposure Limit Values: Not reported. European Occupational Exposure Limits: Not reported. Biological Limit Values (BLVs): Not allocated. The relevant exposure limit values, for "Petroleum gases, liquefied" (CAS No. 68476-85-7) are: TWA (Greece): Short term value: 1250 ppm, 2250 mg/m^3, Long term value: 1250 ppm, 2250 mg/m^3; PEL (OSHA): 1800 mg/m^3, 1000 ppm; REL (NIOSH) 1800 mg/m^3, 1000 ppm; TLV (ACGIH): Simple asphyxiant.
75-08-1 Ethyl mercaptan	WEL (Great Britain): Short-term value: 5.2 mg/m³, 2 ppm Long-term value: 1.3 mg/m³, 0.5 ppm TWA (Greece): Short-term value: 25 mg/m³, 10 ppm Long-term value: 25 mg/m³, 10 ppm DFG-MAK(GER): Long-term value: 1.3 mg/m³, 0.5 ppm PEAK/CEIL: I(1) PEL (OSHA): Ceiling limit: 25 mg/m³, 10 ppm

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	REL (NIOSH) — Ceiling limit: 1.3* mg/m³, 0.5* ppm *15 min TLV (ACGIH) — Long-term value: 1.3 mg/m³, 0.5 ppm
8.1.2 Information on currently recommended monitoring procedures	EN 689 EN 1127-1:2011 EN 60079-0:2012
8.1.3 Applicable occupational exposure limit values and/or biological limit values for air contaminants (if formed when using the substance/mixture as intended)	No available information.
8.1.4 DNEL/PNEC values	DNELs: Dermal — DN(M)EL - Chronic effects systemic — 23.4 mg/kg (WORKERS) Benzene is the only marker substance that contributes dermal hazard to the stream (remaining markers are gases). **Justification for (no) DN(M)EL derivation** - Acute exposure (inhalation): Data available does not allow the derivation of a DNEL. - Acute exposure (dermal): No data available. Testing not technically feasible. - Long-term exposure (inhalation): Data available does not allow the derivation of a DNEL. - Long-term exposure (dermal): No data available. Testing not technically feasible. **Justification for (no) PNEC derivation** Substance is a hydrocarbon UVCB (with a complex, unknown or variable composition). Therefore conventional methods of deriving PNECs are not appropriate and it is not possible to identify a single representative PNEC for such substances. Substance is a gas, thus deriving a PNEC is unreasonable and technically of little use for risk assessment.

8.2. Exposure controls

8.2.1 Appropriate engineering controls / Technical measures to prevent exposure:	Use in well-ventilated place. Use this product with explosion-proof equipment.
Organisational measures to prevent exposure:	Before a worker is placed in a job with a potential for exposure to the substance, a licensed health care professional should evaluate and document the worker's baseline health status.
Stability and reactivity // Conditions to avoid:	Keep away from heat and sources of ignition. Materials to avoid strong oxidizing agents, chlorine, oxygen Hazardous decomposition products In case of fire or thermal decomposition production of, for example, Carbon monoxide, carbon dioxide (CO_2)
Hazardous reactions:	Vapours may form explosive mixture with air.
Disposal considerations:	With respect to local regulations, e.g. incineration via flare system. No waste key number as per the European Waste Types List can be assigned to this product, since such classification is based on the (as yet

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	undetermined) use to which the product is put by the consumer. The waste key number must be determined as per the European Waste Types List (decision on EU Waste Types List 2000/532/EC) in cooperation with the disposal firm / producing firm / official authority.
8.2.1. 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:	 **Self-contained breathing apparatus (SCBA)** EN 136 EN 137 EN 141:2000  **Wear eye protection** Safety glasses EN 166, CR 13464 Wear goggles when transfilling or breaking transfer connections. Standard EN 166 - Personal eye-protection - specifications.  Wear face shield
Skin protection:	
- Hand protection	 **Wear hand protection** Protective gloves (EN 374, EN 407) EN 60903:2003, EN 420, EN 388. The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the gloves material on consideration of the penetration times, rates of diffusion and the degradation. **Material of gloves:** PVC gloves. Nitrile rubber, NBR. The selection of the suitable gloves does not only depend on the material,

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	but also on further marks of quality and varies from manufacturer to manufacturer. **Penetration time of glove material** The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed. 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. Neoprene rubber (HNBR).
- Other	**Body protection:**  Wear foot protection Safety Boots  Wear protective clothing EN 340, EN 465:1995, EN 466-1:1995, EN 467:1995, EN 397. In case of large scale fires: DIN EN 137, EN 469, EN 533:1997, EN 1486:2007. 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	 **Wear respiratory protection** Gas filters may be used if all surrounding conditions e.g. type and concentration of the contaminant(s) and duration of use are known. Use gas filters with full face mask, where exposure limits may be exceeded for a short-term period, e.g. connecting or disconnecting containers. Recommended: Filter AX (brown). Gas filters do not protect against oxygen deficiency. Standard EN 14387 - Gas filter(s), combined filter(s) and standard EN136, full face masks. Self-contained breathing apparatus (SCBA) EN 136 EN 137

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	EN 141:2000
Thermal hazards	None in addition to the above sections.
8.2.2. Environmental exposure controls	
	Probability for leakage to the environment (in the air) during production and distribution. Monitoring of losses to the environment to be controlled according to local and EU regulations. Refer to local regulations for restriction of emissions to the atmosphere. See section 13 For specific methods for waste gas treatment. See section 6 Methods and material for containment and cleaning up

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Information: The entries indicates Butane physical and chemical properties.

	Appearance:	
(a)	Physical state	at 20°C and 1013 hPa: Gaseous.
(b)	Colour:	Colourless.
(c)	Odour: Odour threshold:	Odourless Not determined
(d)	Melting point/freezing point	The melting point of the Petroleum gases ranged from -187.6 to -138.3 °C.
(e)	Boiling point or initial boiling point and boiling range	The boiling point of the Petroleum gases is in the range -161.48°C to -0.5°C.
(f)	Flammability	The maximum range of lower and upper explosion limits for the category ranged from 5-15%.
(g)	Lower and upper explosion limit (‘flammability limit’)	LFL: 1,8% UFL: 15%
(h)	Flash point	The Petroleum gases have flash points which range from -104 to -60.0°C.
(i)	Auto-ignition temperature	The autoflammability of the Petroleum gases ranges from 287 to 537°C.
(j)	Decomposition temperature	Not determined.
(k)	pH	Not determined. Does not apply to gases
(l)	Kinematic viscosity	Not determined. Does not apply to gases
(m)	Solubility	Not determined.
(n)	Partition coefficient n-octanol/water (log value)	Does not apply to gases 61g/m^3
(o)	Vapour pressure	Vapour pressure at 40 °C: 545 kPa Vapour pressure at 50 °C: 681,25 kPa
(p)	Density and/or relative density	The relative density of the Petroleum gases is 0.4228 to 0.589 g.cm-3 at 25°C.
(q)	Relative vapour density	the relative density of the gas based on air at 20 °C as reference is 0,7753Kg/L
(r)	Particle characteristics	Does not apply to gases

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9.2. Other information

9.2.1. Information with regard to physical hazard classes

(a) Explosives	Void
(b) Flammable gases	Extremely Flammable gas
(c) Aerosols	Void
(d) Oxidising gases	Void
(e) Gases under pressure	Contains gas under pressure; May explode if heated
(f) Flammable liquids	Void
(g) Flammable solids	Void
(h) Self-reactive substances and mixtures	Void
(i) Pyrophoric liquids	Void
(j) Pyrophoric solids	Void
(k) Self-heating substances and mixtures	Void
(l) Substances and mixtures, which emit flammable gases in contact with water	Void
(m) Oxidising liquids	Void
(n) Oxidizing solids	Void
(p) Corrosive to metals	Void
(q) Desensitised explosives	Void

9.2.2. Other safety characteristics

(a) mechanical sensitivity;	No further relevant information available.
(b) self-accelerating polymerisation temperature;	No further relevant information available.
(c) formation of explosible dust/air mixtures;	No further relevant information available.
(d) acid/alkaline reserve;	No further relevant information available.
(e) evaporation rate;	No further relevant information available.
(f) miscibility;	No further relevant information available.
(g) conductivity;	No further relevant information available.
(h) corrosiveness;	No further relevant information available.
(i) gas group;	No further relevant information available.
(j) redox potential;	No further relevant information available.
(k) radical formation potential;	No further relevant information available.
(l) photocatalytic properties.	No further relevant information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

	No available data.

10.2. Chemical stability

	Stable under normal conditions of use.

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

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

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	Contact with incompatible materials, expose in flame, sparks and other sources of ignition.

10.5. Incompatible materials

	Halogens, oxidants. 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. Thermal decomposition or burning may produce carbon monoxide and carbon dioxide.

SECTION 11: Toxicological information

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

Substance “Hydrocarbons, C3-4-rich, petroleum distillate” (CAS No. 68512-91-4) is a member of the Low Olefins and Aromatics REACH Consortium (LOA) Category K.		
(a)	Acute toxicity:	Based on available data, the classification criteria are not met. Product is flammable in air at room temperature and, thus certain tests do no need to be conducted, according to REACH Annex XI.
(b)	Skin corrosion/irritation:	Product is flammable in air at room temperature and, this certain test does no need to be conducted, according to REACH Annex XI. Key value for Chemical Safety Assessment: Not irritating.
(c)	Serious eye damage/irritation:	Product is flammable in air at room temperature and, this certain test does no need to be conducted, according to REACH Annex XI. Key value for Chemical Safety Assessment: Not irritating.
(d)	Respiratory or skin sensitization:	Product is flammable in air at room temperature and, this certain test does no need to be conducted, according to REACH Annex XI.
(e)	Germ cell mutagenicity:	No known effects from this product.
(f)	Carcinogenicity:	No specific carcinogenicity data are available.
(g)	Reproductive toxicity;:	Toxicity to reproduction
(h)	STOT-single exposure:	No known effects from this product.
(i)	STOT-repeated exposure:	No known effects from this product.
(j)	Aspiration hazard:	Not applicable for gases and gas mixtures.

11.2. Information on other hazards

	No data available

SECTION 12: Ecological information

12.1. Toxicity

12.1.1 Aquatic toxicity

LC50	24.11-147.54 mg/L (FISH) Short-term toxicity to fish.

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EC50	7.71-16.5 mg/L (AQUATIC ALGAE AND CYANOBACTERIA)
LC50/96h	7.02-69.43 mg/L (AQUATIC INVERTEBRATES) Short-term toxicity.

12.1.2 Sediment toxicity

The results of the Chemical Safety Assessment do not indicate the need to conduct further tests.

12.1.3 Terrestrial toxicity

This study does not need to be conducted, as direct and indirect exposure of the soil compartment is unlikely. **Toxicity to birds:** The results of the Chemical Safety Assessment do not indicate the need to conduct further tests

12.2. Persistence and degradability

12.2.1 Persistence Assessment

Assessment:	Predicted data indicate that representative structures of the substance are not considered to be persistent and do not meet the screening criteria for persistence.

12.2.2 Stability

Hydrolysis:	Substance is resistant to hydrolysis because it lacks a functional group that is hydrolytically reactive. Therefore, this fate process will not contribute to a measurable degradative loss of this substance from the environment.
Phototransformation in water/soil:	No available data.

12.2.3 Biodegradation

- Biodegradation in water:	Substance is readily biodegradable.
- Biodegradation in water and sediment:	The results of the Chemical Safety Assessment do not indicate the need to conduct further tests.
- Biodegradation in soil:	Study does not need to be conducted, as the substance has low potential for adsorption to soil.

12.3. Bioaccumulative potential

Assessment:	Not expected to bioaccumulate due to the logKow of the substance is lower than 3.0. 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:	PBT: Substance does not fulfil the criteria of REACH Annex XIII. vPvB: Substance does not fulfil the criteria of REACH Annex XIII.

12.6. Endocrine disrupting properties

Assessment:	Emission characterization is not required because the substance does not fulfill the PBT/vPvB criteria

12.7. Other adverse effects

Other adverse effects:	No known effects from this product.
Effect on the ozone layer:	None.
Global warming potential [CO2=1]:	4

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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

13.1.1 Product / Packaging disposal:	Dispose according to relative legislation and the approval of local authorities. Recommendation: Dispose according to local regulations. 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.
13.1.2 Waste treatment - relevant information:	The product evaporates very rapidly in normal conditions of temperature and pressure and the need of waste treatment is infrequent.
13.1.3 Sewage disposal – relevant information:	Prevent from entering sewers.
13.1.4 Other disposal recommendations:	Return partly used or empty cylinders to the supplier.
13.2 Additional information:	Not available.
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.
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.:	UN 2037

14.2. UN proper shipping name

Transport by road/rail (ADR/RID):	UN 2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)
Transport by sea (IMDG):	UN 2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) without a release device, non-refillable
Transport by air (ICAO-TI / IATA-DGR):	UN 2037	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)

14.3. Transport hazard class(es)

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ADR/RID, ADN:	Class **2**, Label **2.1** Flammable gases, Classification Code: **5F**	
IMDG / IATA-DGR:	Class **2**, Gases **2.1** Flammable gases	

Land transport (ADR/RID):		
Hazard identification number / (Kemler code): (ADR/RID):	23	Flammable gas
Hazard Class - labelling:	2.1	
Classification code (ADR/RID)	5F	
Special Provisions:	191, 303, 327, 344	
Limited quantities:	1 L	
EQ:	E0	
Package - Instructions:	P003, LP200	
Package - Special Provisions:	PP17, PP96, RR6, L2	
Special provisions for packing together:	MP9	
Special provisions for carriage - Loading, unloading (ADR):	CV9, CV12	
Special provisions for carriage - Loading, unloading (RID):	CW9, CW12	
Special provisions for carriage - Operation (ADR):	S2	
Transport category	2	
Tunnel restriction code:	D	

Sea transport (IMDG):	
EmS-No: (Fire)	F-D
EmS-No: (Spillage)	S-U
Special Provisions:	191, 277, 303
Stowage and segraegation:	Category B. Clear of living quarters
Limited quantities:	See SP277
Excepted quantities:	E0
Package - Instructions:	P003
Package - Provisions:	PP17
Stowage and handling:	SW2
Properties and observations:	Normally contain mixtures of liquefied butane and propane in various proportions for use in camping stoves, etc.
Medical First Aid Guide (MFAG):	The ship’s medicine chest

Air transport (IATA):

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Hazard label:	Flamm. gas	
Excepted Quantity Code:	E0	
Passenger and Cargo Aircraft: Ltd.Qty.:	Pack.Instr. Y203 - Max. Net Qty/Pkg. 1 kg	
Passenger and Cargo Aircraft:	Pack.Instr. 203 - Max. Net Qty/Pkg. 1 kg	
Cargo Aircraft only:	Pack.Instr. 203 - Max. Net Qty/Pkg. 15 kg	
Special Provisions:	A145 A167 A802	
Emergency Response Guide-Code (ERG):	10L	

Inland waterway craft (ADN):		
Hazard labelling:	2.1	
Special Provisions:	191, 303, 327, 344	
Limited quantities:	1 L	
EQ:	E0	
Equipment necessary:	PP, EX, A	
Ventilation:	VE01	

14.4. Packing group

ADR/RID	ADN	IMDG	IATA-DGR:
Not applicable	Not applicable	Not applicable	Not applicable

14.5. Environmental hazards

Dangerous for the environment:	Substance/mixture is not environmentally hazardous according to the criteria of the UN model regulations.
Marine pollutant - IMDG:	No

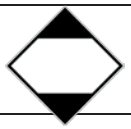
14.6. Special precautions for user

Land transport (ADR/RID):	
Transport category	2
Tunnel restriction code:	D

14.7. Maritime transport in bulk according to IMO instruments

	No data available

Other information:

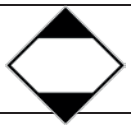
ADR	Limited quantities (LQ)	1L
Limited Quantity Marking.	Packages containing dangerous goods in limited quantities shall bear the mark shown in Figure 3.4.7.1 of ADR	
Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity	
Transport category	2	
Tunnel restriction code	D	

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IMDG	Limited quantities (LQ)	1L
Limited Quantity Marking.	Packages containing dangerous goods in limited quantities shall bear the mark shown in Figure 3.4.7.1 of ADR	
Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity UN 2037 Receptacles, small, containing gas (gas cartridges) / UN1950 Aerosols	

SECTION 15: Regulatory information

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

National regulations - EC member states
REACH Regulation 1907/2006/EC
Regulation (EU) 2020/878
CLP Regulation 1272/2008/EC
Directive 98/24/EC on the protection of health and safety of workers from the risks related to chemicals agents at work.
Council Directive 94/33/EC on the protection of young people at work, as amended.
Directive 92/85/EEC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding, as amended.
Note K applies. Contains less than 0,1 % w/w 1,3-butadiene (Einecs No 203-450-8).
Directive 2012/18/EU Named dangerous substances - ANNEX I None of the ingredients is listed. Seveso category P2 FLAMMABLE GASES Qualifying quantity (tonnes) for the application of lower-tier requirements 10 t Qualifying quantity (tonnes) for the application of upper-tier requirements 50 t
Commission Regulation (EU) 2019/521 of 27 March 2019 amending, for the purposes of its adaptation to technical and scientific progress Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.
Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (Text with EEA relevance).
IMO IMDG: International Maritime Dangerous Goods Code
(MFAG): Medical First Aid Guide
ADR 2023: Agreement Concerning the International Carriage of dangerous Goods by Road
Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
COMMISSION DIRECTIVE (EU) 2016/2037 of 21 November 2016 amending Council Directive 75/324/EEC as regards the maximum allowable pressure of aerosol dispensers and to adapt its labelling provisions to Regulation (EC) Directive 75/324/EEC of 20 May 1975 on the approximation of the laws of the Member States relating to aerosol dispensers

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out

SECTION 16: Other information'

Reason of change: Date of previous version:	Compliance with Regulation (EU) 2020/878 requirements 01/01/2023

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Department issuing data sheet: see section 1:	Department responsible for information
Abbreviations and acronyms:	ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road AS/NZS: Australian Standards/New Zealand Standards CAS: Chemical Abstracts Service CFR: Code of Federal Regulations CLP: Classification, Labelling and Packaging CNS: Central Nervous System DIN: German Insitute for Standardization DMEL: Derived minimal effect level DNEL: Derived no-effect level EC: European Community EN: European Standard EQ: Excepted quantities EU: European Union Flam. Gas: Flammable gases IATA: International Air Transport Association IATA-DGR: International Air Transport Association – Dangerous Goods Regulations IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk IMDG Code: International Maritime Dangerous Goods Code LC50: Median lethal concentration LEL: Lower Explosion Limit MARPOL: Maritime Pollution: The International Convention for the Prevention of Pollution from Ships NF: French Standard OEL: Occupational Exposure Limit Value OSHA: Occupational Safety and Health Administration PBT: Persistent, bioaccumulative and toxic PNEC: Predicted no-effect concentration Press. Gas: Gases under pressure REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail TLV: Threshold Limit Value TRGS: Technical Rules for Hazardous Substances UN: United Nations vPvB: Very persistent and very bioaccumulative WEL: Workplace Exposure Limit
Training advice:	Ensure operators understand the flammability hazard.
Full text of H- and EUH-statements	
Flam. Gas 1A	Flammable gases, Category
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H224	Extremely flammable liquid and vapour.
H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H340	May cause genetic defects.
H350	May cause cancer.
H400	Very toxic to aquatic life (M factor =10).
H410	Very toxic to aquatic life with long lasting effects (M factor =10).
H229:	Pressurised container: May burst if heated

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P210:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. - No smoking. (Manufacturer needs to specify applicable ignition sources: Example burners fire, lighters fire, lamb fire).
P211:	Do not spray on an open flame or other ignition source.
P102	Keep out of reach of children.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.
P403	Store in a well-ventilated place.
P410+P403	Protect from sunlight. Store in a well-ventilated place.
P410+P412:	Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
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.

The information in this data sheet has been established to our best knowledge and was up-to-date at time of revision. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.

End of document

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