SAFETY DATA SHEET

PRO GASES UK

Pro Liquid CO_2, Bulk Liquid Carbon Dioxide, Liquid CO_2

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830 AS AMENDED BY UK REACH REGULATIONS SI 2019/758

Date of issue: 15/10/2025
Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name	Pro Liquid CO_2, Bulk Liquid Carbon Dioxide, Liquid CO_2
CAS No.	124-38-9
EC No.	204-696-9

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

Identified Use(s)	**Industrial and professional.** Perform risk assessment prior to use. Aerosol propellant. Balance gas for mixtures. Beverage applications. Blanketing gas. Calibration gas. Carrier gas. Chemical synthesis. Fire suppressant gas. Food packaging gas. Freezing, Cooling and heat transfer. Inerting gas. Inflation systems. Laboratory use. Laser gas. Plant growth promoter. Pressure head gas, operational assist gas in pressure systems. Process gas. Refrigerant. Test gas. Propellant gas. Shielding gas in gas welding. Water treatment. pH/neutralising agent.
Uses advised against	Anything other than the above.

1.3 Details of the supplier of the safety data sheet

Company Identification	Pro Gases UK 28 Forth Street, Bootle, Liverpool, United Kingdom, L20 8JW
Telephone	0151 922 1118
E-mail (competent person)	info@progasesuk.com

1.4 Emergency telephone number

Emergency Phone No.	+44 (0) 127356 9048	Available 24/7
Languages spoken	English	

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Press. Gas Refrig. Liq. Gas, H281

2.2 Label elements

According to the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain

Product name: Pro Liquid CO_2, Bulk Liquid Carbon Dioxide, Liquid CO_2

Hazard Pictogram(s)

Signal Word(s): Warning

Hazard Statement(s): H281: Contains refrigerated gas; may cause cryogenic burns or injury.

Precautionary Statement(s):
P282: Wear cold insulating gloves and either face shield or eye protection.
P336+P315: Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.
P403: Store in a well-ventilated place.

Supplemental information: Not applicable

2.3 Other hazards

Asphyxiant in high concentrations. Not classified as PBT or vPvB. Does not cause endocrine disruption.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

SUBSTANCE	CAS No.	EC No.	REACH Registration No.	%W/W
Carbon dioxide (CO_2)	124-38-9	204-696-9	Not yet assigned in the supply chain	> 99

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Self-protection of the first aider: No action should be taken involving personal risk. Use personal protective equipment as required. Ensure adequate ventilation. Do not breathe gas. Rescuers should put on approved respiratory protection before entering the area to render first aid. In high concentration the gas may cause a suffocation. Victim may not be aware of asphyxiation.

Inhalation: IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Apply artificial respiration if breathing has ceased or shows signs of failing. In high concentration the gas may cause a suffocation. Victim may not be aware of asphyxiation. Keep warm and at rest.

Skin contact: IF ON SKIN: Gently wash with plenty of soap and water. If irritation develops and persists, get medical attention. In case of frostbite, wash with plenty of water; do not remove clothing.

Eye contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

	Ingestion	IF SWALLOWED: Rinse mouth. Give plenty of water to drink. Do NOT induce vomiting. If you feel unwell, seek medical advice (show the label where possible).
4.2	**Most important symptoms and effects, both acute and delayed**	Low concentrations of CO2 cause increased respiration and headache. Liquid splashes or spray may cause freeze burns to skin and eyes. Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling
	Asphyxiant in high concentrations.	In high concentrations may cause rapid circulatory deterioration even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness and even death.
4.3	**Indication of any immediate medical attention and special treatment needed**	Treat symptomatically. Thaw frosted parts with lukewarm water. Do no rub affected area.
	Notes to a physician:	Do not attempt to remove clothing that adheres to the skin due to freezing

SECTION 5: FIREFIGHTING MEASURES

5.1	**Extinguishing media**	
	Suitable extinguishing media	Not flammable. In case of fire use extinguishing media appropriate to surrounding conditions.
	Unsuitable extinguishing media	Do not use water jet. Direct water jet may spread the fire.
5.2	**Special hazards arising from the substance or mixture**	Contains gas under pressure; may explode if heated. Sealed containers may rupture explosively if hot. Do not pierce or burn, even after use.
5.3	**Advice for firefighters**	Fight fire with normal precautions from a reasonable distance. Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	No action should be taken involving personal risk. Wear appropriate personal protective equipment, avoid direct contact. Ensure adequate ventilation. Use personal protective equipment as required. Do not breathe gas. Ensure adequate ventilation. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. The vapour is heavier than air; beware of pits and confined spaces.
6.2	**Environmental precautions**	Do not allow to enter drains, sewers or watercourses. Avoid release to the environment. Spillages or uncontrolled discharges into soil must be alerted to the appropriate regulatory body.
6.3	**Methods and material for containment and cleaning up**	Provided it is safe to do so, isolate the source of the leak. Ventilate area. Allow small spillages to evaporate provided there is adequate ventilation.
6.4	**Reference to other sections**	See Section: 8,13

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Only trained and properly protected personnel must be involved in clean-up operations. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable positive pressure respiratory protection equipment. Please see section 8 for appropriate personal protection equipment Protect containers against damage. Keep container in an upright position. Close valve after each use and when empty. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. Remove contaminated clothing and wash clothing before reuse.
7.2	**Conditions for safe storage, including any incompatibilities**	Keep container tightly closed. Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Opened containers should be carefully resealed and stored in an upright position.
	storage temperature	Keep in a cool, well ventilated place. Protect from sunlight.

	Incompatible materials	Cryogenic liquids can cause embrittlement of some metals and alter the physical properties of other materials. No reaction with any common materials in dry or wet conditions.
7.3	**Specific end use(s)**	See Section: 1.2

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits

European Union

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Carbon Dioxide	124-38-9	5000	9000	-	-	-

Source: IOELV: Indicative Occupational Exposure Limit Value

United Kingdom (Great Britain & Northern Ireland)

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Carbon Dioxide	124-38-9	5000	9150	15000	27400	-

Source: WEL: Workplace Exposure Limit (UK HSE EH40)

8.1.2	**Biological limit value**	Not established
8.1.3	**PNECs and DNELs**	Not established

8.2 Exposure controls

8.2.1	**Appropriate engineering controls**	Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Oxygen detectors should be used when asphyxiating gases may be released. Provide adequate ventilation, including appropriate local extraction, to ensure that the occupational exposure limit is not exceeded. Systems under pressure should be regularly checked for leakages. Preferably use permanent leak tight connections (eg. welded pipes). CO2 detectors should be used when CO2 may be released.
8.2.2	**Individual protection measures, such as personal protective equipment**	Keep good industrial hygiene. Wear appropriate personal protective equipment, avoid direct contact. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke at the work place.

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Eye/ face protection 	Wear eye protection with side protection (EN166). Eyewash bottles should be available.
Skin protection 	**Hand protection:** Wear cold protection gloves (EN 511). **Body protection:** Wear suitable coveralls to prevent exposure to the skin. Wear safety shoes (EN344).

Respiratory protection 	Use self-contained breathing apparatus. Container device with compressed air (DIN EN 137)
Thermal hazards	If there is a risk of contact with the liquid, all protective equipment should be suitable for extremely low temperatures.

8.2.3 Environmental exposure controls Avoid release to the environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Refrigerated liquefied gas
Odour	Odourless
Odour threshold	Not available
pH	3.2 – 3.7
Melting point/freezing point	-56.6 °C
Initial boiling point and boiling range	-78.5 °C
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not flammable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	45.1 bar (10 °C)
Vapour density	1.522 (21 °C)
Relative density	1.512 (-56.6 °C)
Solubility(ies)	Water: 2.900 mg/l (25°C)
Partition coefficient: n-octanol/water	0.83
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	0.07 mPa.s (20 °C)
Explosive properties	Not explosive
Oxidising properties	Not oxidising.

9.2 Other information None Known

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity Stable under normal conditions.

10.2 Chemical stability Stable under normal conditions.

10.3 Possibility of hazardous reactions None anticipated

10.4 Conditions to avoid None anticipated.

10.5 Incompatible materials Cryogenic liquids can cause embrittlement of some metals and alter the physical properties of other materials. No reaction with any common materials in dry or wet conditions.

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 toxicological effects

Acute toxicity - Ingestion Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw

Acute toxicity - Inhalation Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: LC50 > 20,000 ppm (Gases)

Acute toxicity - Skin contact Based upon the available data, the classification criteria are not met.
Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw

	Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
	Serious eye damage/irritation	Based upon the available data, the classification criteria are not met.
	Respiratory or skin sensitisation	Based upon the available data, the classification criteria are not met.
	Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
	Carcinogenicity	Based upon the available data, the classification criteria are not met.
	Reproductive toxicity	Based upon the available data, the classification criteria are not met.
	STOT - single exposure	Based upon the available data, the classification criteria are not met.
	STOT - repeated exposure	Based upon the available data, the classification criteria are not met.
	Aspiration hazard	Based upon the available data, the classification criteria are not met.
11.2	**Other information**	In high concentrations may cause rapid circulatory deterioration even at normal levels of oxygen concentration. Symptoms are headache, nausea and vomiting, which may lead to unconsciousness and even death.

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	Based upon the available data, the classification criteria are not met.
12.2	**Persistence and degradability**	not applicable
12.3	**Bioaccumulative potential**	The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.
12.4	**Mobility in soil**	Because of its high volatility, the product is unlikely to cause ground or water pollution.
12.5	**Results of PBT and vPvB assessment**	Not classified as PBT or vPvB.
12.6	**Other adverse effects**	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1	**Waste treatment methods**	Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well ventilated place.
13.2	**Additional information**	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. Dispose of container via supplier only. Discharge, treatment, or disposal may be subject to national, state, or local laws.
	Waste code:	16 05 05: Gases in pressure containers other than those mentioned in 16 05 04.

SECTION 14: TRANSPORT INFORMATION

		ADR/RID	**IMDG**	**IATA/ICAO**
14.1	**UN number**	UN2187	UN2187	UN2187
14.2	**UN proper shipping name**	CARBON DIOXIDE, REFRIGERATED LIQUID	CARBON DIOXIDE, REFRIGERATED LIQUID	CARBON DIOXIDE, REFRIGERATED LIQUID
14.3	**Transport hazard class(es)**	2	2	2
14.4	**Packing group**	-	-	-
14.5	**Environmental hazards**	Not classified	Not classified as a Marine Pollutant.	Not classified
14.6	**Special precautions for user**	See Section: 2		
14.7	**Transport in bulk according to Annex II of Marpol and the IBC Code**	No information available.	No information available.	No information available.

SECTION 15: REGULATORY INFORMATION

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

15.1.1 EU regulations

Authorisations and/or restrictions on use: Not restricted

15.1.2 National regulations

	UK Authorisations and/or restrictions on use	Not restricted
15.2	**Chemical Safety Assessment**	This substance is exempted from Registration according to the provisions of Article 2(7)a and Annex IV of REACH

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Not applicable- V1.0

References:
EU classification and labelling inventory Carbon dioxide (CAS No. 124-38-9).

This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830.

Legend

ADR	ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
IATA	IATA: International Air Transport Association
ICAO	ICAO: International Civil Aviation Organization
IMDG	IMDG: International Maritime Dangerous Goods
LTEL	Long term exposure limit
PBT	PBT: Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	RID: Regulations concerning the international railway transport of dangerous goods
STEL	Short term exposure limit
vPvB	vPvB: very Persistent and very Bioaccumulative
EU	European Union
OEL	Occupational exposure limits
TWA	Time Weighted Average
ECHA	European Chemicals Agency

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required. Users of breathing apparatus must be trained. The hazard of asphyxiation is often overlooked and must be stressed during operator training. Ensure operators understand the hazards.

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