SAFETY DATA SHEET

Pro Laser 1

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

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Version: 1.0

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

1.1 Product identifier

Product name	Pro Laser 1
Product type	Gaseous Mixture
Product storage	Sold in Cylinders

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

Identified Use(s)	Industrial and professional uses. Perform risk assessment prior to use. Assist / shielding / purge gas in laser cutting and laser welding processes.
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
Language(s) 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 (Comp.); H280

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

Product description	Pro Laser 1
Hazard Pictogram(s)	
Signal Word(s)	WARNING
Hazard Statement(s)	H280: Contains gas under pressure; may explode if heated.
Precautionary Statement(s)	P410+P403: Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards: Asphyxiant in high concentrations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances - Not applicable

3.2 Mixtures

EC Classification Regulation (EC) No. 1272/2008 (CLP)

Chemical identity of the substance	%W/W	CAS No.	EC No.	REACH Registration No.	Hazard Statement(s)
Helium (He)	81.0	7440-59-7	231-168-5	Exemptions apply	Press. Gas (Comp.); H280
Nitrogen (N)	15.6	7727-37-9	231-783-9	Exemptions apply	Press. Gas (Comp.); H280
Carbon dioxide*	3.4	124-38-9	204-696-9	Exemptions apply	Press. Gas (Comp.); H280

Note: For full text of H phrases see section 16. *Substance with a community workplace exposure limit

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. Asphyxiant in high concentrations. Avoid inhalation of high concentrations of gas. Eliminate sources of ignition. Use personal protective equipment as required. If it is suspected that fumes are still present, the responder should wear an appropriate mask or self-contained breathing apparatus.

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: Dermal exposure is considered to be not relevant. Rapid release of gas may cause frostbite. Do not attempt to remove clothing that adheres to the skin due to freezing. Thaw frosted parts with lukewarm water. Do not rub affected area. Get immediate medical advice/attention.

Eye contact: Unlikely route of exposure. Rapid release of gas may cause cold burns or corneal damage. Immediately flush eyes for at least 15 minutes using lukewarm water. Do not rub affected area. Obtain prompt consultation, preferably from an ophthalmologist.

Ingestion: Oral exposure is considered to be not relevant.
IF SWALLOWED: Rinse mouth. Get medical advice/attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

In high concentration the gas may cause a suffocation. Victim may not be aware of asphyxiation. Headaches and dizziness may occur, proceeding to fainting or unconsciousness; large doses may result in coma and death. Rapid release of gas may cause frostbite

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Rapid release of gas may cause frostbite. Treat cold burns as frostbite. Thaw frosted parts with lukewarm water. Do not rub affected area.

Notes to a physician: Asphyxiant in high concentrations. Exposure to significant quantities may cause delayed pulmonary oedema. Treat cold burns as frostbite.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: As appropriate for surrounding fire. Foam, CO2 or dry powder

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

Not flammable. Does not support combustion.

Hazardous decomposition products: May generate concentrations of Carbon monoxide/ Ozone

Compressed gas: 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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	**Personal precautions, protective equipment and emergency procedures**	Shut off source of leak if safe to do so. Eliminate all ignition sources if safe to do so. Ensure adequate ventilation. In case of inadequate ventilation wear respiratory protection. Wear suitable protective clothing. Contaminated clothing should be thoroughly cleaned.
6.2	**Environmental precautions**	Avoid release to the environment.
6.3	**Methods and material for containment and cleaning up**	Only trained and properly protected personnel must be involved in clean-up operations. Ensure adequate ventilation. Isolate the area and allow gas to disperse.
	Small scale	Allow gas to disperse naturally in a well-ventilated area. Prevent access until ventilation has restored safe oxygen level. (>19.5% O_2).
	Large scale	Evacuate area. Fight fire remotely due to the risk of explosion. Notify police and fire brigade as soon as possible. Prevent access until ventilation has restored safe oxygen level. (>19.5% O_2).
6.4	**Reference to other sections**	See sections 8 and 13

SECTION 7: HANDLING AND STORAGE

7.1	**Precautions for safe handling**	Workers in the risky process/areas identified should be trained. Do not handle until all safety precautions have been read and understood. Avoid inhalation of high concentrations of gas. Ensure adequate ventilation. In case of inadequate ventilation wear respiratory protection. Do not open valve until connected to equipment prepared for use. Close valve after each use and when empty. Do not eat, drink or smoke at the work place. Wash contaminated clothing before reuse. Wash hands before breaks and after work.
7.2	**Conditions for safe storage, including any incompatibilities**	Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources. Keep container in an upright position. Isolate from reducers and flammable/ combustible materials etc in storage.
	Storage temperature	Keep cool. Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
	Incompatible materials	No known incompatible materials.
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: 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**	Provide adequate ventilation, including appropriate local extraction if dusts, fumes or vapours are likely to be evolved. Install Gas detectors for toxic gases/vapours and oxygen - use and operation Store in a cool/low-temperature, well-ventilated (dry) place away from heat and ignition sources.
8.2.2	**Individual protection measures, such as personal protective equipment**	Do not breathe gas. Fuels are typically used, transferred and transported in closed systems. Keep good industrial hygiene. Do not eat, drink or smoke at the work place.
	Eye/ face protection	Not normally required. Wear safety goggles in accordance with EN ISO 16321 as a protection against mechanical risks.
	Skin protection	Wear gloves in accordance with EN 388 as a protection against mechanical risks. **Body protection**: Apron or other light protective clothing, boots and plastic or rubber gloves. Wear safety shoes (EN344).
	Respiratory protection	In case of inadequate ventilation wear respiratory protection. Recommended: BS EN 14387:2004+A1
	Thermal hazards	Rapid release of gas may cause frostbite.
8.2.3	**Environmental exposure controls**	Avoid release to environment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Colourless Compressed gas
Odour	Odourless
Odour threshold	Do not depend on odor to detect presence of gas.
pH	Not applicable
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not flammable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	No data available
Vapour Density (Air=1)	0.5 @ 15°C
Relative density	No data available
Solubility(ies)	No data available
Partition coefficient: n-octanol/water	Not established
Auto-ignition temperature	Not applicable
Decomposition temperature	Not established
Viscosity	Not applicable
Explosive properties	Not explosive
Oxidising properties	Not oxidising.

9.2	**Other information**	None

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	Stable under normal conditions.
10.2	**Chemical stability**	Chemically inert gas**.** Stable under normal conditions.
10.3	**Possibility of hazardous reactions**	No hazard expected under normal conditions of use.
10.4	**Conditions to avoid**	Keep away from heat and sources of ignition. Sealed containers may rupture explosively if hot. Use only in well-ventilated areas. In high concentration the gas may cause a suffocation. Victim may not be aware of asphyxiation.
10.5	**Incompatible materials**	No known incompatible materials.
10.6	**Hazardous decomposition products**	May generate concentrations of Carbon monoxide/ Ozone

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw
Acute toxicity - Inhalation	Mixture: 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	Mixture: Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: LD50 >2000 mg/kg bw
Skin corrosion/irritation	Mixture: Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Mixture: Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitisation	Mixture: Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Mixture: Based upon the available data, the classification criteria are not met.
Carcinogenicity	Mixture: Based upon the available data, the classification criteria are not met.
Reproductive toxicity	Mixture: Based upon the available data, the classification criteria are not met.
STOT - Single Exposure	Mixture: Based upon the available data, the classification criteria are not met.
STOT - Repeated Exposure	Mixture: Based upon the available data, the classification criteria are not met.
Aspiration hazard	Mixture: Based upon the available data, the classification criteria are not met. Product form: Gas

11.2	**Other information**	None.

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Toxicity**	Mixture: Based upon the available data, the classification criteria are not met. Estimated LC50 (Mixture): > 100 mg/l/96h
12.2	**Persistence and degradability**	Testing can be waived because mixture is a gas.
12.3	**Bioaccumulative potential**	Testing can be waived because mixture is a gas.
12.4	**Mobility in soil**	Testing can be waived because mixture is a gas.
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**	Refer to the EIGA code of practice. (Doc.30 "Disposal of Gases", downloadable at http://www.eiga.org). Disposal should be in accordance with local, state or national legislation.
	EU Waste Codes:	Container: 16 05 05: Gases in pressure containers other than those mentioned in 16 05 04
13.2	**Additional information**	Pressurized container: Do not pierce or burn, even after use.

SECTION 14: TRANSPORT INFORMATION

		ADR/RID	**IMDG**	**IATA/ICAO**
14.1	**UN number**	UN 1956	UN 1956	UN 1956

14.2	**UN proper shipping name**	COMPRESSED GAS, N.O.S (Nitrogen, Helium)	COMPRESSED GAS, N.O.S (Nitrogen, Helium)	COMPRESSED GAS, N.O.S (Nitrogen, Helium)
14.3	**Transport hazard class(es)**	2	2	2
14.4	**Packing group**	None assigned	None assigned	None assigned
14.5	**Environmental hazards**	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**	Not applicable	Not applicable	Not applicable
14.8	**Additional information**			

Special Provisions	274, 378, 392, 655, 662
Limited Quantities	120 mL
Transport category	3
Tunnel restriction code	(E)

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: A chemical safety assessment is not required under REACH.

SECTION 16: OTHER INFORMATION

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

References:

Existing Safety Data Sheet (SDS)

EU classification and labelling inventory for Nitrogen (CAS No. 7727-37-9); Helium (He) (CAS No. 7440-59-7); Carbon dioxide (CAS No.124-38-9)

Classification: This Safety Data Sheet was prepared in accordance with EC Regulation (EC) 1907/2006 (REACH), 1272/2008 (CLP) & 2015/830. Compiled in accordance with REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Classification of the substance or mixture. The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain	**Classification procedure**
Press. Gas (Comp.); H280	Product form; On basis of test data.

Legend

CAS	Chemical Abstracts Service
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
DNEL	Derived no effect level
EC	European Community
ECHA	European Chemicals Agency
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO/IATA	ICAO: International Civil Aviation Organization / IATA: International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal concentration at which 50% of the population is killed
LD50	Lethal dose at which 50% of the population is killed
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
UK	United Kingdom

UN	United Nations
vPvB	very Persistent and very Bioaccumulative

Hazard classification / Classification code:
Press. Gas (Comp.); Gases under pressure (Compressed gas)

Hazard Statement(s)
H280: Contains gas under pressure; may explode if heated.

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.

For detailed guidance on safe handling, storage, and transport of cryogenic liquids in the UK, refer to industry standards such as:

1. BCGA CP 44: The Storage of Gas Cylinders
2. BCGA Guidance Note 11 (GN 11): Reduced Oxygen - The Hazards.

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