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

1.1	**Product identifier**		
	Production name:	**TURBO GASPro**	
	Chemical name:	propylene	
	Index number	601-011-00-9	
	EC number	204-062-1	
	Cas number	115-07-1	
	Registration number	01-2119447103-50-xxxx	
1.2	**Relevant identified uses of the substance or mixture and uses advised against**		
	Identified use:	Welding and brazing	
	Not recommended use:	Any used that is is not in the identified use	
1.3	**Details of the supplier of the safety data sheet**		
	Company name	OXYTURBO SpA	
	Address and State	Via S. Michele Arcangelo, 3 25017 – Lonato del Garda (BS) Italy	
	Phone	+39.030.9911855	
	Fax	+39.030.9911271	
	Responsable person's e-mail for material safety data sheet		safety@oxyturbo.it
1.4	**Emergency telephone number**		
	Telephone number of United Kingdom Poison Centers (24/24 hours per day): 844 892 0111		

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Product classified as hazardous in accordance with EC Regulation 1272/2008 (CLP) (as amended and adapted). The product therefore requires a material safety data sheet in accordance with EC Regulation 1907/2006 and amendments.
Classification and hazard identifications:

Flam. Gas 1 H220 Extremely flammable gas, hazard category 1
Press. Gas H280 Contains gas under pressure; may explode if heated

2.2 Label elements

Pictograms

Warning Danger

Hazard statements:

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

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.
P403 Store in a well-ventilated place.
P410+P403 Protect from sunlight. Store in a well-ventilated place.
P501 Dispose of contents/container to Multi waste collection centre

2.3 Other hazards

Physico-chemical:
The product can give rise to explosive mixtures with air, especially in confined spaces.
Vapours have a higher density than air and tend to stratify close to the ground.
Strong heating of the canister (e.g. in the event of fire) causes a considerable increase in the volume of the liquid and pressure, with danger of bursting.
Hazard for Workers'health and safety:
High concentrations of vapour – in confined spaces especially – may cuase asphyxia for oxygen shortage.
Contact with the liquid can cause severe injuries to the skin and eyes.
Environmental hazards:
The product does not meet the classification criteria for PBT or vPvB according to Annex XIII of the EC Regulation nr. 1907/2006 (REACH).

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

CAS No.	EC no.	INDEX no.	REACH Registration no.	% [in weight]	Denomination	Classification under (EC) n. 1272/2008 (CLP)
115-07-1	204-062-1	601-011-00-9	01-2119447103-50-XXXX	≤ 100	propylene	Flam. Gas 1; H220 Press. Gas; H280

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General indications: High concentrations of vapours may cause asphyxia. Symptoms may include loss of mobility[consciousness. Victims may not realize the asphyxia. Remove victim to ventilated area, wearing a self-contained breathing apparatus. Keep victim warm and rested. Immediately call a doctor.

Contact with the eyes (liquid phase): High concentrations of vapours may cause asphyxia. Symptoms may include loss of mobility[consciousness. Victims may not realize the asphyxia. Remove victim to ventilated area, wearing a self-contained breathing apparatus. Immediately call a doctor.

Contact with the skin (liquid phase): Take off carefully contaminated clothing. Irrigate the damaged skin area with plenty of water. Seek medical attention to treat any cold lesions.

Inhalation (gaseous phase): Remove victim from the source of exposure. In case of symptoms related to inhalation of vapours,seek immediately medical attention. Apply artificial respiration if breathing stopped.

Ingestion: Route of exposition reasonably unpredictable.

4.2 Most important symptoms and effects, both acute and delayed

High concentrations of vapuors may cause asphyxia, with symptoms such as loss of mobility[consciousness. Victims may not realize the asphyxia. Low concentrations of vapuors may cause respiratory tract irritation and have a narcotic effect, with symptoms such as dizziness, headache, nausea and loss of coordination. Contact with the rapidly evaporating liquid may cause cold frostbite.

4.3 Indication of any immediate medical attention and special treatment needed

For indication of any immediate medical attention and[or special treatment, see SECTION 4.1. Symptoms related to inhalation of vapours may also occur after some time from the exposure. Show the doctor product label and[or safety data sheet.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing device

Suitable devices: water spray and dry chemical powder.
No suitable devices: carbon dioxide and direct water jet.

5.2 Special hazards arising from the substance or mixture

The product is an extremely flammable gas and contains gas under pressure. If involved in a fire, the cylinder may explode, with emission of irritating fumes and toxic gases (carbon oxides) and projection of metal fragments. Vapours may form explosive mixtures with air. Vapours are heavier than air and may accumulate at or below ground level.

5.3 Advice for firefighters

Evacuate and isolate the area until complete fire extinction, by limiting access only to trained personnel. In the event of a fire due to gas leakage, do not extinguish, unless leak can be stopped safely. It is therefore preferable to have a release of ignited gas, rather than a cloud of gas expanding towards a source of ignition. Significant ignition releases - if they can't be shut off by intercepting the gas flow - must be reduced and kept under control with the use of fractional jet hydrants, also with the aim of reducing the concentration of any gas clouds below the lower explosive limit. Request the intervention of firefighters, if you are not sure of being able to extinguish the fire in a short time with the extinguishing media available. Cool containers exposed to fire with water spray in order to avoid overheating and the consequent danger of bursting. Firefighters must always wear appropriate protective equipment (helmet, boots, fireproof gloves and positive pressure self-contained breathing apparatus with a face shield) [ref. EN 469]. Prevent the contaminated extinguishing water flowing into drains or
waterways.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipments and procedures in case of emergency

Evacuate and isolate the area until complete fire extinction, by limiting access only to trained personnel. Consider the risk of potentially explosive atmospheres. Eliminate all sources of ignition, if this can be done without risk. Limit release at the source if this can be done without risk. Ensure adequate ventilation. Check the concentration of released product. Do not breathe gas[vapours. Avoid contact with eyes, skin and clothing. Alert the competent authorities in accordance with the emergency plan.

6.1.1 For non emergency personnel:

Wear appropriate personal protective equipments (refer to the SECTION 8.2).

6.1.2 *For emergency responders*:

Wear appropriate personal protective equipments (refer to the SECTION 8.2). In case of intervention in areas with a high concentration of gas (e.g. confined spaces), wear a self-contained breathing apparatus. Stay upwind, if this can be done without risk. Use fractional jet hydrants, also with the aim of reducing the concentration of any gas clouds below the lower explosive limit. Prevent the gas from spreading in lowered areas, since vapours are heavier than air and may accumulate at or below ground level. Orient cylinders so as to avoid the leakage of liquid, if this can be done without risk.

6.2 Environmental precautions

Minimize spillage. Prevent the product from leaking into the environment and run off into drains, basements, excavations and areas where the accumulation can be dangerous.

6.3 Methods and material for containment and cleaning up

Allow the product to evaporate, favoring its dispersion.

6.4 Reference to other sections

For information on personal protection see SECTION 8.2. For information on disposal considerations, see SECTION 13.1.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

The personnel handling the product must be instructed about its specific risks and the safety measures to be taken. Ensure adequate ventilation. Avoid release of the product into the atmosphere. Do not breathe gas[vapours. Avoid contact with eyes, skin and clothing. Wear
appropriate personal protective equipment (see SECTION 8.2). Remove the air from the system before introducing the gas. Use only specific equipment, suitable for the product, pressure and operating temperature. Use non-sparking equipment only. Do not use electrical equipment if not equipped with an explosion protection system. Keep away

from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Provide grounding of vessels, pipes and equipment. Take precautions against electrostatic discharge. Keep away from incompatible materials (see SECTION 1o.5). Keep away from combustible materials. Protect cylinders from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels applied on cylinders. When moving cylinders, use a cart (trolley, hand truck, etc.) designed to their transport. Fix always the cylinders in vertical position. Do not allow backfeed into the cylinder. Slowly open the valve to avoid pressure surges. Close valve after each use and when cylinder is empty. Leave valve protection caps in place until the cylinder has been secured and is ready for use. Replace valve outlet caps as soon as container is disconnected from equipment. Damaged valves should be reported immediately to the supplier. Never attempt to repair or modify cylinder valves or safety relief devices. Keep container valve outlets clean and free from contaminants particularly oil and water. Never attempt to transfer gases from one cylinder to another. Do not eat, drink, or smoke during use.
Wash hands and other exposed areas after use. Wash periodically clothes and personal protective equipment to remove contaminants.

7.2. Conditions for safe storage, including any incompatibilities

The product is subject to the provisions of Directive 2o12[18[EU (SEVESO III) as a flammable gas (P2). The electrical equipment present in the storage area must be compatible with the risk of forming explosive atmospheres. Store the cylinders in a vertical position and anchored in order to prevent their fall. Store the cylinders in conditions that avoid corrosive phenomena. Store in a cool, dry and well ventilated place. Protect from sunlight and do not expose to temperatures exceeding 5o °C. Store away from heat, hot surfaces, sparks, open flames and other ignition sources. Not smoking. Provide grounding of vessels, pipes and equipment. Take precautions against electrostatic discharge. Store away from incompatible materials (see SECTION 10.5). Store away from combustible materials. Check periodically the cylinders in order to verify general conditions and any leaks.

7.3 Specific end use(s)

Uses different from those indicated in SECTION 1.2 are specifically discouraged.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECION.

8.1 Control parameters

ACGIH - TWA (8 hours)	500 ppm
DNEL - workers – short time inhalation (local)	860 mg/m^3
DNEL - workers – short time inhalation (systemic)	860 mg/m^3
PNEC - water (fresh water)	1.38 mg/l
PNEC - water (marine water)	1.38 mg/l

8.2 Exposure controls

8.2.1 *Suitable technical controls*

Handle the product in closed systems only. Provide localised exhaust ventilation or other devices to keep airborne particle levels below recommended exposure limits. In case a release of flammable gases or vapours may occur, provide appropriate detectors. Check pressurised systems periodically for leaks. Provide emergency showers and eye wash facilities in areas where the product is handled and stored. Do not eat, drink or smoke during use. Wash hands and other skin areas exposed to the product after use. Wash work clothing and personal protective equipment periodically to remove contaminants.

Thermal hazards: The product is an extremely flammable gas. Protect from sunlight and do not expose to temperatures exceeding 50 °C.

8.2.2 *Personal protection devices*

The adoption of personal protective equipment must follow the risk assessment carried out in accordance with Legislative Decree No. 81/2008. In any case, consult the supplier before making a final decision on which devices to equip yourself with:

a) Eyes and face protections:

Wear safety glasses with side protection. In case of thermal risk (cold frostbite) by liquid jet, wear a visor or a face shield [ref. EN 166].

b) *Skin protecion:*

i. *Han protection*:

Wear antistatic gloves with high resistance to abrasion, to protect against mechanical risks (material = neoprene; penetration time = 24o minutes) [ref. EN 388]. In case of thermal risk (cold frostbite) by jet of liquid, wear heat-insulating gloves (material = nitrile rubber; penetration time = 24o minutes) [ref. EN 511]. Replace immediately the gloves in case of contamination or breakage.

ii. *other*:

wear working clothes (type EN 340).

c) *Respiratory protection:*

Wear a full face mask with type AX filter (brown) for organic vapours [ref. EN 136/EN 14387]. In case of intervention in areas with a high concentration of gas (e.g. confined spaces), wear a self-contained breathing apparatus [ref. EN 529].

d) *Thermal hazards:*

The product is an extremely flammable gas. Protect from sunlight and do not expose to temperatures exceeding 50 °C.

8.2.3 *Environmental exposure controls*

Operate in accordance with the provisions of the relevant legislation concerning the water protection, waste management and limitation of the emissions into the atmosphere.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	**Appearance**	Liquefied gas
b)	**Color**	Colourless
c)	**Odour**	Characteristic
d)	**Melting point/freezing point**	Not applicable for gas
e)	**Initial boiling point and boiling range**	-48 °C
f)	**Flammability**	Extremely flammable gas
g)	**Upper/lower flammability or explosive limits**	LIE = 1.9 - 5.3 vol% ; LSE = 8.5 - 15 vol%
h)	**Flash point**	Not applicable for gas
i)	**Auto-ignition temperature**	455 °C
j)	**Decomposition temperature**	No tested on the products
k)	**pH**	Not applicable for gas
l)	**Kinetic viscosity**	0.083 mPa.s (16.7 °C)
m)	**Solubility**	380 mg/l (20 °C) ; 200 mg/l (25 °C)
n)	**Partition coefficient: n-octanol/water**	log Pow = 1.77
o)	**Vapour pressure**	< 1071.4 kPa (20 °C)
p)	**Density/relative density**	gas = 1.5 (water=1) ; liquid = 0.6 (water = 1)
q)	**Relative vapour density**	1.49 (air=1)
r)	**Particle characteristics**	No available data

9.2 Other information

Critical temperature	92.4 °C
Critical pressure	45.6 atm

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

No particular danger of reaction with other substances under recommended conditions of use and storage.

10.2 Chemical stability

Stable under recommended conditions of use and storage.

10.3 Possibility of hazardous reactions

The product may form explosive mixtures with air, especially in confined spaces. Contact with oxidizing agents may cause strongly exothermic reactions and result in fire and/or explosion.

10.4 Conditions to avoid

Avoid exposure to sunlight and temperatures above 50 °C. Avoid contact with heat, hot surfaces, sparks, open flames and other ignition sources. Avoid the accumulation of static discharge. Avoid contact with incompatible materials (see SECTION 10.5).

10.5 Incompatible materials

Strong oxidising agents, oxidising agents, halogens, chlorine, fluorine and acetylene.

10.6 Hazardous decomposition products

Hazardous decomposition products are not formed under recommended conditions of use and storage. Incomplete combustion can release CO2 (carbon dioxide) and CO (carbon monoxide).

SECTION 11: TOXYCOLOGICAL INFORMATION

No experimental data are available on the mixture.

Sintomi connessi:

Inhalation : Inhalation of mists containing the product may cause irritation of the mucous membranes and apnoea. Absorption of the gas causes a narcotic effect (depression of the central nervous system), so it may cause dizziness or asphyxia without premonitory symptoms. At higher exposures (1% - 10% in air) effects on pulmonary and cardiac function (arrhythmia, cardiac arrest).

11.1 Information on toxicological effects

a) Acute toxicity:
The product is flammable at room temperature and standard pressure and is capable of forming explosive mixtures with air. Therefore, experiments on the possible effects of acute oral[dermal toxicity are not considered practicable or relevant.

LC50 inhalation (rat) = 369733 ppm (4 hours)

b) Skin corrosion/irritation:
Based on the available data, the classification criteria is not satisfied.
Skin contact with liquefied gas may cause cold frostbite.

c) Serious eye damage/irritation
Based on the available data, the classification criteria is not satisfied.
Eye contact with liquefied gas may cause cold frostbite.

d) Respiratory or skin sensitisation: no sensitising effects known

Based on the available data, the classification criteria is not satisfied. .

e) Germ cell mutagenicity: based on the available data, the classification criteria is not satisfied.
Gene mutation test in mammalian cells (in vitro) " negative
Gene mutation test in bacteria (in vitro) " negative

f) Carcinogenicity: based on the available data, the classification criteria is not satisfied.

g) Reproductive toxicity: no reproductive toxicity effect known for the products

h) Specific toxicity for target organs (STOT) — single exposure: no toxicity effect known for the product

i) Specific toxicity for target organs (STOT) — repeated exposure: no toxicity effect known for the product

j) Aspiration hazard: no applicable for gas and mixture of gas.

11.2 Information on other hazards

No data available

SECTION 12: ECOLOGICAL INFORMATION

No experimental data on the mixture are available.

12.1 Toxicity

NOEC fishes = 51.7 mg/l (30 days)
LC50 fishes = 51.7 mg/l (96 ore) [QSAR estimation]

LC50 daphnia sp. 3.1 mg/l (16 days)
LC50 daphnia sp. 28.2 mg/l (48 hours) [QSAR estimation]
NOEC algae = 4.5 mg/l (96 hours)
EC50 algae = 12.1 mg/l (96 hours) [QSAR estimation]

12.2 Persistence and degradability

Biodegradation = 50 % (2.36 days [QSAR estimation]
The product is expected to be readily biodegradable and not persistent in the environment.

12.3 Bioaccumulative potential

Log Pow = 1.77
The product is not expected to bioaccumulate.

12.4 Mobility in soil

Henry's law constant = 1.099 MPa (25 °C)
Due to the high volatility, the product is not expected to cause pollution of soil and groundwater.

12.5 Results of PBT e vPvB assessment.

The product does not meet criteria for PBT or vPvB classification according to Annex XIII of Regulation (EC) 1907[2006 (REACH).

12.6 Endocrine-disrupting properties

No data available

12.7 Other adverse effects

The product is not expected to have toxic effects on aquatic organisms. In case of dispersion in the environment, the product evaporates in the atmosphere, undergoing rapid degradation processes by hydroxyl radicals. Such phenomenon can contribute to the formation of photochemical smog, although this depends on complex interactions with other pollutants and local atmospheric conditions.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

The product has to be wasted in accordance with the Italian Decree no. 152/2006 and entrusted to qualified companies authorised to treat flammable waste. The product gives a hazardous character to waste that contains residues, due to its flammability and the possibility of formation of explosive atmospheres. Take all necessary measures to avoid the dispersion of product into the atmosphere. Do not discharge into areas where the accumulation can be hazardous and[or where there is a risk of forming explosive atmospheres with air. Dispose of the gas in a suitable flame retardant torch. In any case, contact the supplier for further information on the correct disposal of the product and container. The empty container may contain combustible product residues. Do not pierce or burn the empty container.

EWC Code

16 05 04 "Gases in pressure containers (including halons) containing dangerous substances". However, this code is only a general indication, based on the original composition of the product and its intended use. The identification of an appropriate EWC code is a specific responsibility of the waste producer, on the basis of the actual use of the product and of any alterations or contaminations.

SECTION 14: TRANSPORT INFORMATION

14.1 UN NUMBER: 1077

14.2 Offical UN transport designation: PROPYLENE

14.3 Transport hazard class: 2.1

14.4 Packing group: no applicable

14.5 Environmental hazards: environmentally non-hazardous material

14.6 Special precautions for users:

- ✓ 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 that containers are firmly secured;
  - Ensure cylinder 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;
  - Ensure there is adequate ventilation.

14.7 Maritime transport in bulk according to IMO instruments: non applicabile

SECTION 15: REGULATORY INFORMATION

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

- Italian Legislative Decree n° 81/2008 – text on safety in the workplace
- Italian Legislative Decree n° 152/2006 – water protection (Title III) and waste (Title IV)
- Italian Legislative Decree n° 105/2015 - control of major-accident hazards involving dangerous substances.

Substances of very high concern (SVHC) included in the Candidate list for Authorisation [Regulation (EC) 1907[2006 (REACH), art. 59]:

None

Substances subjected to Authorisation [Regulation (EC) 19o7[2oo6 (REACH), Annex XIV]:

None

Substances subjected to Restriction [Regulation (EC) 19o7[2oo6, Annex XVII)]:

Flammable gas: entry 40.

Substances subjected to the provisions of Directive 2o12[18[EU (SEVESO III):

Propylene: flammable gas (P2).

15.2 Chemical safety assessment

For the products has been performed a chemical safety assessment.

SECTION 16: OTHER INFORMATION

a) Revision:

New edition

b) Key references and Acronymus:

ADR:	european agreement concerning the international carriage of dangerous goods by road.
CAS:	chemical abstracts service.
CLP:	classification labelling and packaging.
DNEL:	derived no effect level.
EINECS:	european Inventory of Existing Commercial Chemical Substances
LC50:	concentration of the chemical in the air or water that will kill 50% of the test animals with a single exposure
LD50:	lethal dose for the 50% of the test population.
PNEC:	predicted no effect concentration.
STEL:	short-term exposure limit.
STOT:	organ-specific toxicity.
VLE- 8 hours	concentration of the pollutant for an 8-hour working day
VLE-short time	limit value above which there must be no exposure; unless otherwise specified, this refers to a period of 15 minutes.
TLV-TWA	(Threshold limit value - Time-weighted average) = time-weighted average concentration, over a conventional 8-hour working day and 40-hour working week, to which almost all workers can be expected to be repeatedly exposed, day after day, for an entire working life, without adverse

	effects
TLV-STEL	Threshold limit value - short-term exposure limit) = concentration to which it is considered that workers can be continuously exposed for a short period of time without irritation, chronic or irreversible tissue damage and reduced vigilance arising.repeatedly exposed, day after day, for an entire working life, without adverse effects
MAK	(Maximum tolerable concentration) = is the maximum concentration of a chemical substance (gas, vapour or airborne particle) in the workplace that does not give rise to adverse effects on exposed persons over a long period (8 hours per day or 40 hours per week).

c) Key references and data sources:

- Regulation (EC) 19o7[2oo6 (REACH) (and its subsequent modifications and amendments)
- Regulation (EC) 1272[2oo8 (CLP) (and its subsequent modifications and amendments)
- Supplier's material safety data sheet (Revision no. 1 dated 10.09.2019)

d) Classification and procedure used to derive according to Regulation (EC) 1272/2008 [CLP] in relation to mixtures:

Classification under (EC) Regulation no. 1272/2008	Procedure of classification
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e) Text of the hazard statements (H) mentioned in sections 2-3 of the msds

Flam. Gas 1	Flammable gas, category 1
Press. Gas	Gas under pressure
H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated

f) Appropriate training courses for workers to ensure the protection of human health and the environment:

Personnel in charge of handling the product must be informed in advance of its hazard and the potential risks associated with its use and be instructed on the precautions to be taken to avoid or limit exposure to it.

Additional information:

The information provided in this safety data sheet is correct to the best of our knowledge at the date of its publication. The indications given are designed only as a guidance for safe handling, use, processing, storage, transportation and disposal and are not to be considered a warranty or quality specification. The user must verify their suitability and completeness, also in accordance to its particular use of the product.