

GASEXPRO

SAFETY DATA SHEET

In accordance with Annex II to EC Regulation n° 1907/2006 (REACH)

First issue date: 23.02.2018

Revision n° 1 - 10.09.2019

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

1.1. Product identifier

Product name:	GASEXPRO
Chemical name:	propylene
CAS number:	115-07-1
EC number:	204-062-1
INDEX number:	601-011-00-9
REACH registration number:	01-2119447103-50-xxxx
Molecular formula:	C ₃ H ₆
Molecular weight:	42 g/mol

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

Identified uses: Welding and brazing.

Uses advised against: Any use other than the above identified uses.

1.3. Details of the supplier of the safety data sheet

Company name:	Faithfull Tools
Address	3 White Lodge Business Estate, Hall Road, Norwich, Norfolk, NR4 6DG, United Kingdom.
Phone:	01603 671640
E-mail:	enquiries@faithfulltools.com

1.4. Emergency telephone number

01603 671640

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Flammable gases, Hazard Category 1; H220

Gases under pressure: Liquefied gas; H280

2.2. Label elements

Hazard pictograms:



Signal word:

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.

P410 + P403

Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

Physico-chemical:

- ✓ The product may form explosive mixtures with air, especially in confined spaces.
- ✓ Vapours are heavier than air and may accumulate at or below ground level.
- ✓ A strong heating of the cylinder (e.g. in case of fire) causes a relevant increase in volume of the liquid and pressure, with the risk of bursting.

Human health:

- ✓ The accumulation of the product - especially in confined spaces - may cause asphyxiation due to lack of oxygen.

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	✓ The contact with liquid may cause serious frostbite injuries to the skin and eyes. ✓ For the environment:
Environment:	✓ The product does not meet criteria for PBT or vPvB classification according to Annex XIII of Regulation (EC) 1907/2006 (REACH).

SECTION 3: Composition/information on ingredients

3.1. Substances

Chemical name	CAS no	EC no	INDEX no	Registration no	CLP regulation	% w/w
Propylene	115-07-1	204-062-1	601-011-00-9	01-2119447103-50-xxxx	Flam. Gas 1; H220 Press. Gas; H280	≤ 100

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.
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.
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.
Contact with the eye (liquid phase):	Irrigate the the eyes with plenty of water, keeping the eyelids wide open. Immediately call an ophthalmologist.
Ingestion:	Route of exposition reasonably unpredictable.

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

High concentrations of vapours may cause asphyxia, with symptoms such as loss of mobility/consciousness. Victims may not realize the asphyxia. Low concentrations of vapours 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 media

Suitable:	Water spray and dry chemical powder.
Unsuitable:	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



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waterways.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment, 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.

For non-emergency personnel: Wear appropriate personal protective equipment (see SECTION 8.2).

For emergency responders: Wear appropriate personal protective equipment (see 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

Contain the 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 10.5). 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 2012/18/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 50 °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.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Propylene	ACGIH - TWA (8 hours)	= 500 ppm
	DNEL - workers - inhalation - short term (local)	= 860 mg/m ³
	DNEL - workers - inhalation - short term (systemic)	= 860 mg/m ³
	PNEC - aqua (freshwater)	= 1.38 mg/l
	PNEC - aqua (marine water)	= 1.38 mg/l

8.2. Exposure controls

Wear personal protective equipment in accordance with standards set by European and national legislation. Consult the supplier in all cases before making a final decision.

Skin protection:	Wear anti-static fireproof work clothes (suitable to cover the upper and lower limbs) [ref. EN 943] and safety shoes [ref. EN ISO 20345].
Hand protection:	Wear antistatic gloves with high resistance to abrasion, to protect against mechanical risks (material = neoprene; penetration time = 240 minutes) [ref. EN 388]. In case of thermal risk (cold frostbite) by jet of liquid, wear heat-insulating gloves (material = nitrile rubber; penetration time = 240 minutes) [ref. EN 511]. Replace immediately the gloves in case of contamination or breakage.
Eye protection:	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].
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].
Technical and hygienic measures:	Handle the product only in closed systems. Provide local exhaust ventilation suction or other devices to maintain the levels of particles in the air below the recommended exposure limits. In the event that a release of flammable gases or vapours may occur, provide for the use of appropriate detectors. Check periodically the under pressure systems in order to verify the absence of leaks. Equip with emergency showers and eyewash device the areas in which handling and storage of the product takes place. 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.
Environmental measures:	Operate in accordance with the provisions of the relevant legislation concerning the water protection, waste management and limitation of the emissions into the atmosphere
Thermal hazards:	The product is an extremely flammable gas. Protect from sunlight and do not expose to temperatures exceeding 50 °C.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Appearance:	colourless liquefied gas
b) Odour:	characteristic
c) Odour threshold:	subjective and inadequate to experience overexposure
d) pH:	not relevant for the characteristics of the product (gas)
e) Melting/freezing point:	-185 °C
f) Initial boiling point and boiling range:	-48 °C
g) Flash point:	< -108 °C
h) Evaporation rate:	evaporates rapidly in the atmosphere
i) Flammability (solid, gas):	extremely flammable gas
j) Upper/lower flammability or explosive limits:	LIE = 1.9 - 5.3 vol%; LSE = 8.5 - 15 vol%
k) Vapour pressure:	< 1071.4 kPa (20 °C)
l) Vapour density:	1.49 (air=1)
m) Relative density:	gas = 1.5 (water=1); liquid = 0.6 (water = 1)
n) Solubility:	380 mg/l (20 °C); 200 mg/l (25 °C)

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o) Partition coefficient: n-octanol/water:	log Pow = 1.77
p) Auto-ignition temperature:	455 °C
q) Decomposition temperature:	no test performed
r) Viscosity:	0.083 mPa.s (16.7 °C)
s) Explosive properties:	not relevant, based on the chemical structure of the product
t) Oxidising properties:	not relevant, based on the chemical structure of the product

9.2. Other information

u) Critical temperature:	92.4 °C
v) 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.

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

Oxidizing agents.

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: Toxicological information

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)

Based on available data, the classification criteria are not met.

b) Skin corrosion/irritation

Skin contact with liquefied gas may cause cold frostbite.

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 skin corrosion/irritation are not considered practicable or relevant.

c) Serious eye damage/irritation

Eye contact with liquefied gas may cause cold frostbite.

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 eye corrosion/irritation are not considered practicable or relevant.

d) Respiratory or skin sensitisation

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 respiratory or skin sensitisation are not considered practicable or relevant.

e) Germ cell mutagenicity

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Gene mutation test in mammalian cells (in vitro) → negative
Gene mutation test in bacteria (in vitro) → negative
Based on available data, the classification criteria are not met.

f) Carcinogenicity

No carcinogenicity effect known for the product.

g) Reproductive toxicity

No reproductive toxicity effect known for the product.

h) STOT-single exposure

No STOT effect known for the product after single exposure.

i) STOT-repeated exposure

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 chronic oral/dermal toxicity are not considered practicable or relevant.

NOAEL inhalation (rat) = 10.000 ppm (1 - 20 days)

Based on available data, the classification criteria are not met.

j) Aspiration hazard

Not applicable to gases.

SECTION 12: Ecological information

12.1. Toxicity

NOEC fishes = 51.7 mg/l (30 days)

LC50 fishes = 51.7 mg/l (96 hours) [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]

Based on available data, the classification criteria are not met.

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 and 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. 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

General indications:	Disposal of the product and contaminated containers must be carried out in compliance with the provisions of the applicable legislation and entrusted to qualified companies authorized to treat flammable waste. The product gives a
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	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.
Disposal methods:	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.
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

The product is subject to the provisions of existing legislation governing the transport of dangerous goods by road (ADR), rail (RID), sea (IMDG Code) and air (ICAO/IATA).

14.1. UN number

ADR/RID:	1077
IMDG Code:	1077
ICAO/IATA:	1077

14.2. UN proper shipping name

ADR/RID:	PROPYLENE
IMDG Code:	PROPYLENE
ICAO/IATA:	PROPYLENE

14.3. Transport hazard class(es)

ADR/RID:	2
IMDG Code:	2
ICAO/IATA:	2.1

14.4. Packing group

ADR/RID:	-
IMDG Code:	-
ICAO/IATA:	-

14.5. Environmental hazards

ADR/RID:	-
IMDG Code:	The product is not a marine pollutant
ICAO/IATA:	-

14.6. Special precautions for user

- ✓ 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.

ADR/RID:	✓ Classification code = 2 F ✓ Hazard identification no = 23 ✓ Tunnel Restriction code = B/D
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	✓ Limited quantities = 0 ✓ Exempted quantities = Eo ✓ Packing instructions = P200
IMDG Code:	✓ Hazard label = 2.1 ✓ EMS no = F-D, S-U ✓ Limited quantities = 0 ✓ Exempted quantities = Eo ✓ Packing instructions = P200
ICAO/IATA:	✓ Hazard label = 2.1 ✓ Limited quantities = Eo ✓ Packing instructions = P200

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

ADR/RID:	-
IMDG Code:	-
ICAO/IATA:	-

SECTION 15: Regulatory information

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

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) 1907/2006 (REACH), Annex XIV]:
None.

Substances subjected to Restriction [Regulation (EC) 1907/2006, Annex XVII]:
Flammable gases: entry 40.

Substances subjected to the provisions of Directive 2012/18/EU (SEVESO III):
Propene: flammable gas (P2).

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the product.

SECTION 16: Other information

Revision:

- SECTION 2.2
- SECTION 15.1

Key references and data sources:

- Regulation (EC) 1272/2008 (CLP) (and its subsequent modifications and amendments)
- Regulation (EC) 1907/2006 (REACH) (and its subsequent modifications and amendments)
- Safety data sheet of propylene supplier

Advice on any training appropriate for workers:

The staff responsible for handling the product should be informed about its hazards and potential risks related to its use and be instructed on the precautions to be taken in order to avoid or limit exposure.

Acronyms:

ACGIH:	american conference of governmental industrial hygienists
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
EC:	effective concentration



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EWC:	european waste code
IATA:	international air transport association
ICAO:	international civil aviation organization
IMDG Code:	international maritime dangerous goods code
LC:	lethal concentration
NOAEL:	no observed adverse effect level
NOEC:	no observed effect concentration
PBT:	persistent, bioaccumulative and toxic
PNEC:	predicted no effect concentration
REACH:	registration, evaluation and authorization of chemicals
RID:	regulations concerning the international carriage of dangerous goods by rail
TLV:	threshold limit value
TWA:	time weighted average
vPvB:	very persistent and very bioaccumulative

Notes:

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.