SECTION 1 - IDENTIFICATION

1.1 Product identifier

Product name: **MEZCLA PROPANO - PROPILENO**
Product Identifier:

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

Relevant identified uses: Refinery stream.

1.3 Details of the supplier of the Safety Data Sheet

YPF S.A.
Macacha Güemes n° 515, (C1106BKK) Puerto Madero, Ciudad Autónoma de Buenos Aires, Argentina.
P: +54 11 5441 2000. F: +54 11 5441 5796.

1.4 Emergency telephone number

Emergency phone (24 hours): CIQUIME 0800 222 2933 (from Argentina)
+54 11 4552 8747 (other countries)

SECTION 2 – HAZARD IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to the Globally Harmonized System
Flammable gases (Category 1)
Gases under pressure (liquefied gas)

Pictogram:

Signal word: DANGER
Hazard statements:
H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
Precautionary statements:
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

Extremely flammable gas, liquefied under pressure.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Does not apply.

3.2 Mixtures

IDENTIFICATION NAME	CAS No.	Weight %	CLASSIFICATION
Propylene	115-07-1	min. 50	Flam. Gas 1; Press. Gas
n-Propane	74-98-6	max. 50	Flam. Gas 1; Press. Gas
Isobutane	75-28-5	max. 2	Flam. Gas 1; Press. Gas
n-Butane	106-97-8		Flam. Gas 1; Press. Gas

SECTION 4 – FIRST-AID MEASURES

4.1 Description of first aid measures

General advice: Avoid exposure to the product and take appropriate protective measures. Consult your doctor with the safety data sheet.

Inhalation: Move victim to an area with clean air. Keep her at rest. If not breathing, apply CPR. Call the doctor.

Skin contact: No significant exposure is expected. In liquid state, if contact occurs, immediately wash skin with plenty of soap and water for at least 15 minutes. In case of freezing, wash gently with water or lukewarm physiological solution.

Eye contact: In case of contact, immediately flush eyes with water for at least 15 minutes, keeping eyelids open. Consult the doctor. In case of freezing, wash gently with water or lukewarm physiological solution.

Ingestion: No significant exposure is expected. DO NOT INDUCE VOMITING. Rinse mouth with water. Consult the doctor. If the victim is unconscious, call a physician immediately and turn on their side to reduce the risk of aspiration.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: irritation of throat, respiratory tract, bronchitis, cough, difficulty breathing, nausea, headache. It can cause asphyxiation due to displacement of oxygen.
Skin contact: may cause irritation, dermatitis and thermal burns
Eye contact: may cause irritation and thermal burns.
Ingestion: not a probable route of entry.

4.3 Indication of any immediate medical attention and special treatment needed

Medical advice: Perform symptomatic treatment. For more information, consult a Poison Center.

SECTION 5 – FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use dry chemical, foam or carbon dioxide (CO_2). Use the product according to surrounding materials. DO NOT EXTINGUISH IF CANNOT CUT THE FLOW OF GAS. DO NOT USE water jets as it may spread fire.

5.2 Special hazards arising from the substance or mixture

CONTAINER UNDER PRESSURE. Self-cooling may occur, due to the formation of ice by gas expansion, and drains and valves may clog, becoming inoperable. Vaporization generates temperatures below 0 °C (32°F). The container subjected to heat can explode unexpectedly and project dangerous fragments.

5.3 Advice for firefighters

5.3.1 Firefighting instructions
If possible, stop flow of product.
Do not extinguish a gas leak inflamed if not absolutely necessary. Explosive spontaneous re-ignition may occur.
Damaged containers should be handled only by specialists.
Spray the packaging with water to avoid ignition or to keep them cool if exposed to excessive heat or fire.
Cool containers with water until the fire is extinguished.
Fight fire from a maximum distance or use hose holders or monitor nozzles.
Withdraw immediately in case of rising sound from security mechanisms vents, or if the tank have discoloration.
ALWAYS stay away from container engulfed in fire.
Do not spray water on the vents or security mechanisms as freezing and clogging can occur.
5.3.2 Protective clothing
Use SCBA and structural protection clothing for firefighters.
5.3.3 Hazardous combustion products
In case of fire, it may release irritating and/or toxic fumes and gases, such as carbon monoxide, and other substances derived from incomplete combustion.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment, and emergency procedures

6.1.1 For non-emergency personnel
Evacuate personnel to a ventilated area.
6.1.2 For emergency responders
Wear positive pressure self-contained breathing apparatus and fire-fighting protective clothing (includes fire-fighting helmet, jacket, pants, boots, and gloves). Avoid contact with the product during operations.
For non-fire spills or post-fire cleanup phase, wear chemical protective clothing specifically recommended by the manufacturer.
Eliminate all sources of ignition (no smoking, flares, sparks or open flames in danger area). Ground all equipment used to handle the product. Stop leak if you can do it without risk. You can use water mist to reduce and redirect vapors.

6.2 Environmental precautions

All equipment used when the product is being handled must be grounded.
Confine the area until gas has dispersed.

Prevent vapors from spreading through sewers, ventilation systems and confined areas.
Use water spray to reduce vapors or divert the displacement of the vapor cloud.
Avoid contact of water with the place of the leak.

6.3 Methods and material for containment and cleaning up

Ventilate properly, especially in low areas. An adequate level of oxygen must be ensured before re-entering the sector. Dispose of the water and collected waste in marked containers for disposal as waste.

6.4 Reference to other sections

See Section 8 - Exposure Controls and Personal Protection, and Section 13 – Disposal considerations.

SECTION 7 – HANDLING AND STORAGE

7.1 Precautions for safe handling

Observe label precautions. Keep away from heat, sparks, flame, static discharge and other sources of ignition. VAPORS MAY IGNITE EXPLOSIVELY. Vapors may spread long distances. Prevent buildup of vapors. Extinguish all pilot lights and turn off heaters, non-explosion proof electrical equipment and other sources of ignition during and after use and until all vapors are gone. Close container after each use. Ground containers when pouring. Wash thoroughly after handling and before eating or smoking.

7.2 Conditions for safe storage, including any incompatibilities

Store in a clean, dry, well-ventilated area, preferably outdoors. Protect from sunlight. Avoid temperatures above 50 °C (120°F).
Cylinders should be stored separately from other non-flammable gases in a site designed for this purpose. Cylinders should be placed standing and well secured to prevent falling or knocking over. Separate full and empty cylinders. The valve protection caps should be placed unless the cylinder holds spout from the valve to the point of use. Do not drag, slide or rotate cylinder; use forklifts to move them. Use a pressure reducing regulator when the cylinders are connected to a minor pressure (< 3000 psig) piping or systems. Never warm cylinders to increase discharge rate. Use a retention valve to prevent hazardous back flow into the cylinder.

Packaging materials:	Product in bulk and in bottles.
Incompatibilities:	Keep away from Strong oxidizers such as chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride; nitrogen oxides such as nitrous oxide, nitrogen dioxide and dinitrogen tetraoxide.

7.3 Specific end use(s)

Refinery stream.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

TLV-TWA (ACGIH):	500 ppm [2006]; Propylene Simple asphyxiant

TLV-STEL (ACGIH):	1000 ppm [2017],butane isomers
PEL (OSHA):	1000 ppm; n-Propane
REL:	1000ppm; n-Propane 800ppm; Isobutane 800ppm; n-Butane
IDLH (NIOSH):	2100 ppm; n-Propane 1600 ppm; Isobutane

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Keep workplace ventilated. The normal routine ventilation is usually adequate. Local hoods should be used for operations that produce or release large amounts of product. In low or confined areas should be provided mechanical ventilation. Provide showers and eyewash stations.

8.2.2. Individual protection measures, such as personal protective equipment

Eye and face protection:	When necessary, wear safety glasses complying with EN 166.
Skin protection:	When necessary, wear impermeable protective PVC, nitrile or butyl, or thermal where necessary gloves (complying with standards EN 374), clothes and safety footwear resistant to chemicals.
Respiratory protection:	When necessary, wear an organic gas or steam (AX) respirator. Special attention to oxygen levels in the air should be paid.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance:	Liquefied gas.
Colour:	Colourless.
Odour:	N/D
Odour threshold:	N/D
pH:	N/D
Melting point:	-184°C (-299,2°F)
Boiling point:	-42°C to -11°C (-43,6°F to 12,2°F)
Evaporation rate:	The product is a gas.
Flammability:	The product is flammable.
Flash point:	-135°C (-211°F)
Explosive limits:	1,5% a 9,0%
Auto-ignition temperature:	> 400°C (752°F)
Decomposition temperature:	N/D
Vapour pressure (20°C):	2,1 - 8,4 atm

Vapour density (air=1):	1,6
Relative density (15°C):	N/D
Solubility (20°C):	Insoluble in water.
Partition coefficient (logKo/w):	2,36 - 2,89
Viscosity (15°C):	N/D
Henry constant (20°C):	N/D
Explosive properties:	Not explosive. This study is not necessary because in the product there are no substances with chemical groups associated with explosive properties.
Oxidizing properties:	This study is not necessary because there are no substances that, due to their chemical structure, can react exothermically with combustible materials.

9.2 Other information

Other properties:	None.

SECTION 10 – STABILITY AND REACTIVITY

10.1. Reactivity

It is not expected that product reactions or decomposition may occur under normal storage conditions. It does not contain organic peroxides. It is not corrosive to metals. It does not react with water.

10.2. Chemical stability

The product is chemically stable and it does not require stabilizers.

10.3. Possibility of hazardous reactions

The porduct can polymerize at high temperatures and in the presence of catalysts.

10.4. Conditions to avoid

Avoid high temperatures, open flames, sparks and other sources of ignition. Avoid knocks and / or pierce the container. Avoid exposing to the sun for long periods or reaching temperatures above 50 °C.

10.5. Incompatible materials

Keep away from Strong oxidizers such as chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride; nitrogen oxides such as nitrous oxide, nitrogen dioxide and dinitrogen tetraoxide.

10.6. Hazardous decomposition products

When heated, it may release toxic and irritating vapors. In case of fire, see section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity:
There is no information about the toxicity of the product, but acute toxicity estimations are presented.
ATE-LD50 oral (calc.): It is not a probable route.
ATE-LD50 der (calc.): It is not a probable route.
ATE-LC50 inh. (4 hs., calc): > 5 mg/l
Skin irr. (rabbit, estim.): possible thermal burns.
Eye irr. (rabbit, estim.): possible thermal burns.
Skin sens (Guinea pig, estim.): technically unfeasible study.
Resp. sens (Guinea pig, estim.): technically unfeasible study.
Carcinogenicity, mutagenicity, reproductive toxicity and other effects:
Carcinogenicity: No information is available on any component of this product, present at levels greater than or equal to 0.1%, that is classified as probable, possible or confirmed human carcinogen by IARC (International Agency for Research on Cancer).
Mutagenicity: There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as mutagens according to the GHS.
Tox. Repr .: There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as hazardous for reproduction according to the GHS.
Teratogenicity: There are no components of this product, present at a concentration greater than or equal to 0.1%, that classify as a teratogen.
STOT-SE: There are no components of this product, present at a concentration greater than or equal to 1%, that they classify as toxic to target organs according to the GHS.
STOT-RE: There are no components of this product, present at a concentration greater than or equal to 1%, that they classify as toxic to target organs according to the GHS.
Aspiration: There are no components of this product, present at a concentration greater than or equal to 10%, that classify as toxic by aspiration according to the GHS.
Acute and delayed effects:
Routes of exposure: Inhalation, skin and eye contact.
Inhalation: irritation of throat, respiratory tract, bronchitis, cough, difficulty breathing, nausea, headache. It can cause asphyxiation due to displacement of oxygen.
Skin contact: may cause irritation, dermatitis and thermal burns
Eye contact: may cause irritation and thermal burns.
Ingestion: not a probable route of entry.

SECTION 12 – ECOLOGICAL INFORMATION

12.1. Toxicity

The product does not present acute risks based on the poor solubility of its components.
PNEC (water): N/D
PNEC (sea): N/D
PNEC-STP: N/D

12.2. Persistence and degradability

BIODEGRADABILITY (OECD): 100% in 16 days - readily biodegradable.

12.3. Bioaccumulative potential

Log $K_{o/w}$: 2,36 - 2,89
BIOCONCENTRATION FACTOR - BCF (OCDE 305): N/D. Because the n-octanol/water distribution coefficient (log Pow) is less than 4, accumulation in organisms is not expected.

12.4. Mobility in soil

HENRY CONSTANT (20°C): N/D
LogKoc: N/D The product evaporates quickly, passing into the atmosphere completely..

12.5. Results of PBT and vPvB assessment

There is no test data, but it is believed that this product does not meet the PBT criteria of Annex XIII of the REACH regulation.

12.6. Other adverse effects

AOX and metal containing: Does not contain organic halogens nor metals.

SECTION 13 – DISPOSAL CONSIDERATIONS

Dispose of excess product and empty containers according to current legislation for the protection of the environment and hazardous waste. Disposal procedure: incineration.

SECTION 14 – TRANSPORT INFORMATION

14.1 Transport by land

Proper Shipping Name:	PROPYLENE
UN/ID Number:	1077
Hazard class:	2.1
Packing group:	-
Hazard identification number:	23
Excepted and limited quantity:	333 / CERO
Special provisions:	-

14.2 Air transport (ICAO/IATA)

Proper Shipping Name:	PROPYLENE
UN/ID Number:	1077
Hazard class:	2.1
Packing group:	-
PAX and Cargo Packing instructions:	Forbidden / Forbidden
Cargo Packing instructions:	200; 150 kg

ERC:	10L
Special provisions:	A1

14.3 Sea transport (IMO)

IMDG Code

Proper Shipping Name:	PROPYLENE
UN/ID N°:	1077
Hazard class:	2.1
Packing group:	-
EMS:	F-D, S-U
Stowage and manipulation:	Category E; SW2
Segregation:	–
Marine pollutant:	NO

Proper Shipping Name: UN1077; PROPYLENE; Class 2.1

SECTION 15 – REGULATORY INFORMATION

Not dangerous for the ozone layer.
Volatile organic compounds (VOC's): N/D
NFPA: 2 4 0 - EPP: G

Regulation

Globally Harmonized System of Classification and Labelling of Chemicals, fifth revised edition, 2013 (GHS 2013 - 'ST / SG / AC 10/30 / Rev.5'). The fifth edition is taken into consideration because it is the one valid for Argentina according to Resolution 801/2015 of the SRT. In any case, the information is contrasted with Revision 7 ('ST / SG / AC 10/30 / Rev.7') and clarification is made if required.
Agreement on Transport of Dangerous Products within the MERCOSUR, MERCOSUR\CMC\DEC N° 2/94.
European Agreement on the International Carriage of Dangerous Goods by Road (ADR 2023) and amendments.
Regulations concerning the International Carriage of Dangerous Goods by Rail (RID 2023) and amendments.
International Maritime Dangerous Goods Code (IMDG 2020 - Amendment 41-22), International Maritime Organization (IMO).
Regulations of the International Air Transport Association (IATA 64 ed., 2023) on the transport of dangerous goods by air.

SECTION 16 – OTHER INFORMATION

16.1 Abbreviations and acronyms

N/A: not applicable.
N/D: no data available.
CAS: Chemical Abstracts Service
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists.
TLV: Threshold Limit Value
TWA: Time Weighted Average
STEL: Short Term Exposure
REL: Recommended Exposure Limit.
PEL: Permissible Exposure Limit.

INSHT: National Institute for Safety and Health at Work.
ATE: Acute toxicity estimate.
LD50: Lethal Dose.
LC50: Lethal Concentration.
EC50: Average Effective Concentration.
IC50: Inhibitory Concentration Medium.

DENOMINATION OF GHS CLASSES
Aer.: aerosols
Oxid. Gas: oxidizing gas
Compressed gas: compressed gas
Dissolved gas: dissolved gas
Flam. Gas: flammable gas
Liquefied Refr. Gas: refrigerated liquefied gas
Liquefied gas: liquefied gas
Oxid. Liquid: oxidizing liquid
Flam. Liquid: flammable liquid
Pyr. Liq.: pyrophoric liquid
Met. Corr.: corrosive for metals
Org. Perox.: organic peroxide
Water React. Flam. Gas: substance reactive with water, which emits flammable gases
Oxid. Solid: oxidizing solid
Flam. Solid: flammable solid
Asp Tox.: aspiration toxicity
Carc.: carcinogenicity
Skin Corr. / Irrit.: Corrosion / skin irritation
Eye Damage / Irrit .: Serious eye damage / eye irritation
Lac.: toxic for reproduction - lactation
Muta.: mutagenicity
Repr.: toxic for reproduction
Skin Sens.: skin sensitizer
Resp. Sens.: respiratory sensitizer
STOT Rep. Exp.: Specific target organ toxicity - repeated exposure
STOT Single Exp.: Specific target organ toxicity - single exposure
Acute Tox.: Acute toxicity
Aquatic Acute: Hazardous to the aquatic environment - acute danger
Aquatic Chronic: Dangerous for the aquatic environment - chronic danger
Ozo.: Dangerous for the ozone layer.

16.2 Key literature references and sources for data

International Agency for Research on Cancer (IARC), classification of carcinogens.
Hazard Classification and Labeling of Petroleum Substances in the European Economic Area – 2020, CONCAWE, Brussels, October 2020
European Chemicals Agency – ECHA
GESTIS-Stoffdatenbank, IFA, DGUV, Germany
Annex VI of Regulation (EC) No. 1272/2008, on classification, labeling and packaging of substances and mixtures (CLP Regulation)
US National Library of Medicine - PUBCHEM
eChem Portal, OECD

16.3 Classification and procedure used to derive the classification for mixtures

The classification was performed based on chemical analogues and product information compiled by CIQUIME.
SECTION 2: classification by hazard extrapolation and based on product data.
SECTION 9: product data.
SECTION 11 and 12: calculation of acute toxicity estimation according to GHS, product data and bibliographic data.

Change's control: v.2 - Adaptation to the GHS.

16.4 Disclaimer

This information only concerns the above-mentioned product and is not to be valid for other (s) product (s) or in any process. This safety data sheet provides health and safety information. The information is to our best

knowledge, correct and complete. It is given in good faith but without warranty. The product should be used in applications consistent with our product literature. Individuals handling this product should be in-formed of the recommended safety precautions and should have access to this information. For any other use, exposure should be evaluated so that they can implement appropriate handling practices and training programs to ensure safe operations in the workplace.
It remains the user's own responsibility that this information is appropriate and complete for the special use of this product.