

SECTION 1 - IDENTIFICATION

1.1 Product identifier

Product name: **NORMAL PENTANO**

Product Identifier:

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

Relevant identified uses: Production of solvents, insecticides and polystyrene.

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 number (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 liquids (Category 2)

Specific target organ toxicity – single exposure (Category 3)

Aspiration hazard (Category 1)

Short-term (acute) aquatic hazard (Category 3)

Long-term (chronic) aquatic hazard (Category 2)

2.2 Label elements

Pictogram:



DANGER

Signal word:

Hazard statements:

H225 - Highly flammable liquid and vapour.

H304 - May be fatal if swallowed and enters airways.

H336 - May cause drowsiness or dizziness.

H402 + H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements:

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261 - Avoid breathing fume, mist, vapours and spray.

P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P301 + P310 + P331 - IF SWALLOWED: Call a POISON CENTER or a doctor. Do NOT induce vomiting.
P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P370 + P378 - IN CASE OF FIRE: Use water spray, foam, dry chemical or carbon dioxide to extinguish.
P391 - Collect spillage.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents and/or container in accordance with national and international regulations.

2.3 Other hazards

When used, explosive or flammable air-vapor mixtures may be formed.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

n-Pentane (CAS 109-66-0): 100% - Flam. Liquid 2; Asp. Tox. 1; STOT Single Exp. 3; Aquatic Acute 3; Aquatic Chronic 2*

3.2 Mixtures

Does not apply.

*See section 16 for details on abbreviations.

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:	Immediately wash skin with plenty of soap and water for at least 15 minutes.
Eye contact:	Immediately flush eyes with water for at least 15 minutes, keeping eyelids open. If you have contact lenses, remove them after 5 minutes and continue rinsing eyes. Consult the doctor.
Ingestion:	DO NOT INDUCE VOMITING. Rinse mouth with water. If the victim is unconscious, call a doctor immediately, and turn her on her side to reduce the risk of aspiration. Do not give the victim anything to drink or eat.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation: May cause narcotic effects, with drowsiness, dizziness, and vertigo.

Skin contact: No significant effects expected.

Eye contact: No significant effects expected. May cause temporary irritation.

Ingestion: Harmful if swallowed and if it enters the airways.
Chronic or repeated exposure: No significant effects expected.

4.3 Indication of any immediate medical attention and special treatment needed

Medical advice: If swallowed, material may be aspirated into the lungs and cause chemical pneumonia. Treat properly. For more information, consult a Poison Center.

SECTION 5 – FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Use dry chemical, foam (may be required AR-foam), water spray or CO₂. DO NOT USE water jets as it may spread fire.

5.2 Special hazards arising from the substance or mixture

HIGHLY FLAMMABLE. The material can accumulate static charges that can produce an electrical discharge that can cause fire.

Container and/or tank subjected to heat may unexpectedly explode and project dangerous fragments. Vapors are heavier than air and may spread along floors.

5.3 Advice for firefighters

5.3.1 Firefighting instructions

Spray containers and/or tanks with water to keep them cool.

Continue cooling with water after fire is out.

Prevent water used for fire control from entering watercourses, drains or springs.

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

For large spills, if necessary, use positive pressure self-contained breathing apparatus and fire-fighting protective clothing (including a fire helmet, jacket, trousers, boots and gloves). Avoid contact with the product during operations.

For spills without fire or in the post-fire clean-up phase, wear chemical protective clothing.

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. Do not touch contaminated objects or areas or walk on the spilled material. You can use foam to reduce the emission of vapors. Do not allow reuse of spilled product. Vapors are flammable and heavier than air. Vapors can travel and reach remote ignition sources, causing a flashback fire hazard.

6.2 Environmental precautions

Contain spilled liquid with a dam or barrier. Prevent entry into navigable waterways, sewers, basements or uncontrolled confined areas. This product may be toxic to the environment, especially if released in large quantities.

6.3 Methods and material for containment and cleaning up

Contain and recover the liquid when possible. Collect the liquid product with sand, vermiculite, earth, or inert absorbent material and then completely clean the affected area. Dispose of the waste properly. 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

Do not eat, drink or smoke during handling. Avoid contact with eyes, skin and clothing. Wash arms, hands, and nails after handling. Facilitate access to safety showers and eyewash emergency.

Use equipment and clothing that prevents the accumulation of electrostatic charges. Monitor and avoid explosive atmosphere formation.

7.2 Conditions for safe storage, including any incompatibilities

Store in a clean, dry, well-ventilated area. Protect from the sunlight to avoid excessive increases in container temperature.

Containers, even those that have been emptied, may contain vapors. Do not cut, drill, grind, weld or perform similar operations on or near empty containers.

Do not store together with:

- Pharmaceuticals, food, and animal feed, including additives.
- Infectious, radioactive, and explosive substances.
- Gases.
- Other explosive substances of Class 4.1.
- Flammable solids or desensitized substances of Class 4.1.
- Pyrophoric substances.
- Substances that release flammable gases in contact with water.
- Strongly oxidizing substances of Class 5.1.
- Ammonium nitrate and preparations containing ammonium nitrate.
- Organic peroxides and self-reactive substances.
- Acutely toxic non-combustible substances of Class 6.1.

Under certain conditions, storage together with the following substances is permitted (refer to specific legislation and/or regulations):

- Chronically active non-combustible substances.
- Combustible solids.

The substance should not be stored with substances that can cause hazardous chemical reactions.

Packaging materials: Supplied by the manufacturer.
Incompatibilities: Keep away from Oxidizing mineral acids and strong oxidizing agents.

7.3 Specific end use(s)

Production of solvents, insecticides and polystyrene.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

TLV-TWA (ACGIH):	1000 ppm [2014]
TLV-STEL (ACGIH):	N/D
PEL (OSHA):	1000 ppm
REL:	120 ppm
REL-C:	610 ppm
IDLH (NIOSH):	1500 ppm

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Keep the workplace ventilated. 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 mechanical ventilation should be provided. 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 LLDPE, nitrile, PVA or Viton - butyl, rubber, neoprene or PVC are not recommended - gloves (complying with standards EN 374), clothes and safety footwear resistant to chemicals.

Respiratory protection: When necessary, wear an organic gas or steam (A) respirator. Pay special attention to oxygen levels in the air.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance: Liquid.

Colour: Colourless.

Odour: As gasoline.

Odour threshold: N/D

pH: N/D

Melting point: -130 °C (-202 °F)

Boiling point:	36 °C (97 °F)
Evaporation rate:	N/D
Flammability:	The product is flammable.
Flash point:	-49 °C (-56 °F)
Explosive limits:	1,5 % - 7,8 %
Auto-ignition temperature:	309 °C (588,2 °F)
Decomposition temperature:	N/D
Vapour pressure (20°C):	426 mmHg
Vapour density (air=1):	2,49
Relative density (20°C):	0,626 g/cm ³
Solubility (20°C):	Insoluble in water.
Partition coefficient (logKo/w):	3,4
Viscosity (40°C):	N/D
Henry constant (20°C):	N/D
Explosive properties:	Not explosive. This study is not required because in the molecule no chemical groups are associated with explosive properties.
Oxidizing properties:	This study is not necessary because the substances present in the product, due to their chemical structures, are incapable of reacting 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

No hazardous polymerization is expected.

10.4. Conditions to avoid

Avoid high temperatures, open flames, sparks, and other ignition sources. Under certain circumstances, the product may ignite due to static electricity.

10.5. Incompatible materials

Keep away from Oxidizing mineral acids and strong oxidizing agents.

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:

Bibliographic data are presented for reference.

LD50 oral (bibl.): > 5000 mg/kg

LD50 der (bibl.): > 5000 mg/kg

LC50 inh. (rat, 4 hs., OECD 403): > 5 mg/l

Skin irr. (rabbit, bibl.): not irritant. [Table 3.2.3, GHS]

Eye irr. (rabbit, bibl.): not irritant. [Table 3.3.3, GHS]

Skin sens (Guinea pig, bibl.): not sensitizing

Resp. sens (Guinea pig, bibl.): not sensitizing. [Table 3.4.5, GHS]

Carcinogenicity, mutagenicity, reproductive toxicity and other effects:

Carcinogenicity: Not classified as a carcinogen according to the GHS.

Mutagenicity: Not classified as a mutagen according to the GHS.

Rep. Tox.: Not classified as a reproductive toxicant according to the GHS, with effects on sexual function and fertility.

Teratogenicity: Not classified as a reproductive toxicant according to the GHS, with effects on the development of offspring.

STOT-SE: May cause narcotic effects, with drowsiness, dizziness, and vertigo.

STOT-RE: Not classified as a target organ toxicant through prolonged or repeated exposure according to the GHS.

Prolonged or repeated exposure may cause skin dryness or cracking.

Aspiration: The component is classified as an aspiration toxicant, and its viscosity makes it possible to ingest it by this route.

Other health hazards: This substance is not considered an endocrine disruptor or neurotoxicant.

Acute and delayed effects:

Routes of exposure: Inhalation, skin and eye contact.

Inhalation: May cause narcotic effects, with drowsiness, dizziness, and vertigo.

Skin contact: No significant effects expected.

Eye contact: No significant effects expected. May cause temporary irritation.

Ingestion: Harmful if swallowed and if it enters the airways.

Chronic or repeated exposure: No significant effects expected.

SECTION 12 – ECOLOGICAL INFORMATION

12.1. Toxicity

Bibliographic data of its component are presented for reference.

EC50 (fish, 96 h): 27,55 mg/l

EC50 (inv., bibl., 48 h): 48,11 mg/l
EC50 (algae, bibl., 72 h): 20,33 mg/l
NOEC (fish, 14 d): > 1 mg/l
NOEC (inv., bibl., 14 d): > 1 mg/l
PNEC (water):
PNEC (sea):
PNEC-STP:

12.2. Persistence and degradability

BIODEGRADABILITY (estimated): According to calculations based on the composition, the product is expected to be biodegradable.

12.3. Bioaccumulative potential

Log K_{ow} : 3,4
BIOCONCENTRATION FACTOR - BCF (OCDE 305): N/D

12.4. Mobility in soil

HENRY CONSTANT (20°C): N/D
LogKoc: N/D .

12.5. Results of PBT and vPvB assessment

This product does not meet the PBT criteria of Annex XIII of REACH. This product does not meet the vPvB criteria in Annex XIII of REACH.

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 in accordance with current environmental protection legislation. Classify and dispose of waste with an authorized company. Disposal procedure: incineration.

SECTION 14 – TRANSPORT INFORMATION

14.1 Transport by land

Proper Shipping Name:	PENTANES
UN/ID Number:	1265
Hazard class:	3
Packing group:	II
Hazard identification number:	33
Excepted and limited quantity:	1 L / E2
Special provisions:	-



14.2 Air transport (ICAO/IATA)

Proper Shipping Name:	PENTANES
UN/ID Number:	1265
Hazard class:	3
Packing group:	II
PAX and Cargo Packing instructions:	Y341; 1L / 353; 5L
Cargo Packing instructions:	364; 60L
ERC:	3H
Special provisions:	-



14.3 Sea transport (IMO)

IMDG Code

Proper Shipping Name:	PENTANES
UN/ID N°:	1265
Hazard class:	3
Packing group:	II
EMS:	F-E, S-D
Stowage and manipulation:	Category E
Segregation:	-
Marine pollutant:	NO
Proper Shipping Name:	UN1265; PENTANES; Class 3; PG II; Flash point -49 °C (-56 °F) c.c.



SECTION 15 – REGULATORY INFORMATION

Not dangerous for the ozone layer.

Volatile organic compounds (VOC's): N/D

NFPA: 1 3 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 10 ('ST / SG / AC 10/30 / Rev.10') and clarification is made if required.

Agreement on Transport of Dangerous Products within the MERCOSUR, MERCOSUR\CMC\DEC N° 15/2019.

European Agreement on the International Carriage of Dangerous Goods by Road (ADR) and amendments.

International Maritime Dangerous Goods Code (IMDG), International Maritime Organization (IMO).

Regulations of the International Air Transport Association (IATA) 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 has been made based on chemical analogues and product information.

SECTION 2: Classification by read-across and based on product data.

SECTION 9: Product data.

SECTIONS 11 and 12: Calculation of acute toxicity estimates according to the GHS.



Change's control: v.1 - Adaptation to the GHS.

The partial or total modification of this file is not allowed, including the renown of the product, without the authorization of CIQUIME S.R.L.

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 informed 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.