

Product	PROPYLENE (PROPENE)	Date:	2020/7/15
		Edition:	1

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product identifier

- Trade name: PROPYLENE (PROPENE)
- Chemical name: Propene
- Index no.: 601-011-00-9
- EC no.: 204-062-1
- CAS no.: 115-07-1
- Registration No.: 01-2119447103-50-0313
- Product code: 1002644

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

- Relevant identified uses: **Industrial:** manufacture of substances, formulation & (re)packing of substances, use in polymer production, use as a fuel, use as intermediate, distribution of substances.
Professional: use as a fuel.
Consumer: use as a fuel.
- Uses advised against: The uses that are in the list above are relevant. Other uses are not recommended unless an assessment that proves that the related risks are controlled has been conducted before starting that use.

1.3. Details of the supplier of the safety data sheet

- Manufacturer/supplier: INA-Industrija nafte, d.d.

Address: Av. Većeslava Holjevcica 10
pp 555, 10002 Zagreb, HRVATSKA

Phone: 00-385-1-6450-842 / 00-385-1-6451-075 (24 h)

Fax: 00-385-1-6452-050

e-mail: sds@ina.hr

- Responsible person:

Mirela Mavrinac, B.Sc.

Hrvoje Raukar, B.Sc.

SD & HSE

Tel. 00-385-1-6450-803

1.4. Emergency Telephone Number

- Emergency Service Telephone Number: **112**
- Ministry of the Interior** 00-385-1-6192-929
- Directorate for civil protection 00-385-1-4551-792
- Operative centre for civil protection 00-385-1-4814-911
- e-mail: occz@civilna-zastita.hr
- Medical Information Telephone Number: **00-385-1-23-48-342**

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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2.1.1. Classification according to Regulation (EC) No 1272/2008 (CLP/GHS):

Press. Gas; H280

Flam. Gas 1; H220

Full text of H-phrases: see section 16.

2.2. Label elements
2.2.1. Labelling according to Regulation (EC) No 1272/2008 (CLP/GHS)

Hazard pictograms:



GHS04 GHS02

Signal word: Danger

Hazard statements (H):	H220	Extremely flammable gas
	H280	Contains gas under pressure; may explode if heated.
Precautionary statements (P):	P201	Obtain special instructions before use.
	P202	Do not handle until all safety precautions have been read and understood
	P210	Keep away from sparks, open flames. - No smoking
	P243	Take precautionary measures against static discharge.
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
	P308+ P313	IF exposed or concerned: Get medical advice/attention
	P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
	P410+ P403	Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

The product does not meet the criteria for PBT or vPvB classification in Annex XIII of REACH.

3. COMPOSITION / INFORMATION ON INGREDIENTS

-Substance:	X		Mixture:		
- Components contributing to product hazardousness:					
Substance name	Substance identification			[%]	Classification according to Regulation (EC) No 1272/2008 (CLP/GHS)
	CAS no.	EC no.	Registration no. (REACH)		
propene	115-07-1	204-062-1	01-2119447103-50-0313	≥ 99,7	Flam. Gas; H280 Flam. Gas 1; H220

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4. FIRST AID MEASURES

4.1 Description of first aid measures

- general information: Before administering first aid to the affected persons, isolate the accident area from sources of ignition, including the disconnection from the power supply. Before entering the enclosed space, check the atmosphere and provide ventilation. Use appropriate personal protective equipment (see Section 8).
- after inhalation: Remove affected person from contaminated area on fresh air.
In case of dizziness, nausea, headache and permanent difficulties immediately seek help from a physician.
In case of fainting transport affected person to the hospital, in lateral position, keeping attention on respiratory tract.
In case of difficult breathing or breathing has stopped, open respiratory tract, administer reanimation (heart massage and artificial breathing), and immediately seek help from a physician.
- after skin contact: Frostbite may occur. Do not remove clothing from frostbite area, do not rub, massage or press damaged skin area. Affected area wash with lot of water for at least 15 minutes. If it is possible, warm affected tissue in warm water bath (37 – 42 °C). Immediately seek help from a physician.
- after eye contact: Frostbite may occur. Remove contact lenses (if used by affected person) and wash with water for at least 15 minutes. Immediately seek help from a physician.
- after ingestion: Not considered as possible exposure route. In case of contact with product, frostbite is possible on lips and in mouth.

4.2 Most important symptoms and effects, both acute and delayed

- after inhalation: Headache, dizziness, dullness. Higher concentration or longer exposure can cause fainting and suffocation.
- after skin contact: Compressed gas causes frostbites.
- after eye contact: Compressed gas causes frostbites.
- after ingestion: Not considered as possible exposure route, may cause frostbites.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. In case of contact with product in liquid form, treat frostbite. Only qualified medical personnel should administer oxygen.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

- SUITABLE: Large fires: Water spray, water mist or air foam (for plashes of liquified gas).
Small fires: Dry powder or CO₂ or air foam (for plashes of liquified gas).
In emergency: sand or earth.
- UNSUITABLE: Water jet, simultaneous use of water and foam because water disintegrates foam.

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- **Firefighting measures for special hazards:** Stop product leakage if it can be done in a safe manner, if not, leave the product to burn out and cool the containers and surroundings with water spray.
- **Special firefighting measures:** Use water mist or water spray to cool the areas exposed to heat, and to protect persons. Only persons trained for firefighting protection can use water spray (dispersed water).
- **Special fire fighter protective equipment:** Self-contained open-circuit compressed air breathing apparatus in accordance with HRN EN 137. Wear protective clothing for firefighters (intervention suit) in accordance with HRN EN 469.
- 5.2 Special hazards arising from the substance or mixture:** Extremely flammable and explosive substance. The vapours are heavier than air and may spread further from the place of accident and cause an explosion and fire. Smoke containing CO, CO₂ may occur due to the incomplete combustion of hydrocarbons.
- 5.3 Advice for firefighters:** Fight fire from safe maximal distance. Eliminate sources of ignition.

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures:** Place a sign on visible location that entrance or work with open flame or sparking tools is forbidden. Use protective equipment listed in Section 8 and immediately evacuate unprotected persons from the affected area. Measure oxygen concentration in the air. detector for flammable gases may be used to check presence of flammable gases or vapours. Vapours are heavier than air and may reduce the oxygen level in the room, posing a suffocation risk. Ensure good ventilation of areas at risk. Eliminate all sources of ignition, avoid sparking and take precautionary measures against static electricity. Position yourself downwind in relation to the leak location.
- 6.2 Environmental precautions:** Stop the product leak as soon as possible, if it can be done safely. Prevent gas penetration into places where its accumulation could be dangerous (sewage, recesses and similar). Provide ventilation. The product shall rapidly evaporate if an accidental discharge into the water occurs. Isolate the discharge area.
- 6.3 Methods for cleaning-up and recovery:** Ventilate the discharge area and allow the product to evaporate.
- **Additional warnings:** Discharged liquid soon turns into a gas and forms explosive mixture with air! When the gas concentration in air drops below explosion limits at the point of escape, initiate intervention.

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Displays characteristics of cryogen liquid. Many materials in contact with cooling – cryogen liquid become brittle and crack. In case of contact, it may cause frostbites.

6.4 Reference to other sections: See sections 8 and 13.

7. HANDLING AND STORAGE

- Handling

7.1 Precautions for safe handling

7.1.1 Safe handling advice: Use product only in well-ventilated areas. Keep away from sources of heat and ignition. Use non-sparking tools. Decant only at properly marked and equipped areas in accordance with relevant regulations. Take special care of connection points to prevent possible leaks. Strictly follow occupational safety and fire safety measures.

Do not throw cylinders in order to avoid cylinder or valve damage. Do not handle cylinder in the presence of open flame. Do not check for leaks with open flame, only with soap (foam).

Do not open valves on cylinders or special-purpose tanks with any tool (only with hands). Keep away from direct sunlight.

7.1.2 Advice on general occupational hygiene: It is not allowed to smoke, eat, drink or keep food in a room where this product is handled. Keep personal clothes separated from work clothing and where this product is handled. Use personal protection equipment listed in Section 8. Avoid inhalation and contact with skin and eyes.

7.2 Conditions for safe storage, including any incompatibilities

- **SUITABLE:** Dedicated containers and metal (steel) pressurized cylinders according to regulations concerning storage and decanting of LPG. Store in open space or well-ventilated place, explosion-proof.

- **TO BE AVOIDED:** Storing in the area together with chemicals that can cause fire (oxidants, acids). Do not keep sparking tools and machines in storage area.

Do not store or use cylinders in horizontal position i.e. position in which the liquid is coming out through gas phase opening.

- Packaging materials

- **RECOMMENDED:** Original manufacturer's container with valid certificate.

- **NOT SUITABLE:** Any other packaging material.

7.3 Specific end use(s): No data.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Hazardous substance (CAS No.)	Occupational exposure limit values/short term values (OEL/STEL)		Biological limit values
	ppm	mg/m ³	

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- Monitoring procedures:
8.2. Exposure controls

- Summary of risk management measures: Measuring the concentration of oxygen and hazardous substances in the air according to the regulations.

8.2.1 Occupational exposure controls
- Description of operating procedure and technological control:

Provide good ventilation/air suction in work area. Provide decontamination sprinkler for eyes and face. Respect personal hygiene measures: wash hands after work, mandatory before eating, drinking or smoking. Regularly maintain and wash clothing and equipment after use to remove dirt. Dispose contaminated clothing and equipment according to regulations. Maintain cleanliness according to good practice. Educate and train the employees on potential hazards and control measures. Test and maintain product handling equipment: e.g. personal protection equipment, ventilation system.

8.2.2 Personal protective equipment

- respiratory tract protection: In normal conditions, use protective mask for the whole face (HRN EN 136/AC:2006) with filter for the protection against gases and evaporation of organic compounds with a boiling point up to 65°C, HRN EN 14387, if risk evaluation showed it necessary.
In the event of an increased gas concentration and a decreased oxygen concentration, it is mandatory to use self-contained open-circuit compressed air breathing apparatus (HRN EN 137).
- hand protection: Use protective gloves (HRN EN 374) of persistent leak-proof material (nitrile or nitrile butyl rubber). In frequent contact with the hazardous substance, the resistance level to absorption of the gloves shall be > 240 min.
- eye protection: Safety goggles or visor (HRN EN 166).
- skin and body protection: Protective clothing (HRN EN ISO 13688, HRN EN 1149-5, HRN EN 14605 (type 3 and 4), HRN EN 1073-2, HRN EN ISO 13982-1:2005/A1:2011 TYPE 5, HRN EN 13034 TYPE 6, HRN EN 14126:2004/AC:2005).
- **Special hygienic and safety precautions:** The work place shall be equipped with a shower. No smoking or eating and drinking when handling the gas. Regularly control and monitor the functionality and the use of personal protective equipment used when handling the hazardous chemical. Regularly wash and maintain personal protective clothing and equipment. The contaminated clothing may not be used and shall be replaced.

8.2.3 Environmental exposure controls

- Summary of risk management measures: No data.

9. PHYSICAL AND CHEMICAL PROPERTIES
9.1. Information on basic physical and chemical properties

- state: gas; liquid under pressure

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- colour:	colourless
- odour:	intensive
- odour threshold:	not applicable
- pH value (indicate conc. and temp.):	No applicable.
- Melting point/freezing point:	°C -185 (from literature)
- boiling point/boiling range:	°C -48 (from literature)
- flash point:	°C No data.
- Evaporation rate:	No data.
- flammability (solid, gas):	Extremely flammable gas.
- explosive limits:	vol. % 2 – 11 (from literature)
- vapour pressure:	Pa $>10^5$ (from literature)
- vapour density at 15°C:	kg/m ³ No data.
- relative density:	1,4809 – 1,4883
- density at 15°C:	kg/m ³ 1,8147 – 1,8238
- solubility (indicate solvent):	g/L No data.
- Solubility in water:	mg/L 200 (at 20°C) (from literature)
- partition coefficient n-octanol / water	logPow 1,77 (at 20°C) (from literature)
- auto ignition temperature:	°C 455 (from literature)
- disintegration temperature:	°C No data.
- viscosity (kinematic) at 40 °C:	mm ² /s No data.
- oxidizing properties:	No applicable.
- conductivity:	pS/m No data.

9.2 Other information:

No data.

10. STABILITY AND REACTIVITY

10.1 Reactivity:	Stable under recommended handling and storage conditions.
10.2 Chemical stability:	Stable under recommended handling and storage conditions.
10.3 Possibility of hazardous reactions:	May form explosive mixture with air. In contact with strong oxidants can react rapturously.
10.4 Conditions to avoid:	Contact with air, heat sources, flame, sparking.
10.5 Incompatible materials:	Strong oxidants, nitrogen oxides (NO, NO ₂).
10.6 Hazardous decomposition products:	None in normal working conditions and in case of proper handling, but due to thermal disintegration hazardous gases can occur, including carbon monoxide (CO), carbon dioxide and hydrogen.

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11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

- Acute toxicity

- oral (LD₅₀): No data.
- inhalation (LC₅₀): No data.
- dermal (LD₅₀): No data.

- Irritation/Corrosion

- skin: Compressed gas causes frostbites.
- eyes: Compressed gas causes frostbites.
- respiratory tract: No data.

- Sensitisation

- skin: No data.
- respiratory tract: No data.

- Aspiration hazard: -

- Other classic effects: (e.g. unconsciousness, particularly toxic metabolites, etc.):

Causes headache and drowsiness.
High concentration or longer exposure period may cause fainting and suffocation.

- Permanent effects due to acute or chronic exposure:

No data.

- Special effects

- mutagenicity: Not classified.
- carcinogenicity: Not classified.
- fertility decrease: No data.
- harmful effect on unborn child: No data.
- toxicity to reproduction: No data.
- other (e.g. endocrine disruptors): No data.
- STOT (SE): No data.
- STOT (RE): No data.

- Prohibitions and restrictions:

No data.

- Other:

No data.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

- to aquatic organisms: LC₅₀ = 51,7 mg/l (fish, 96 h); EC₅₀ = 28,2 mg/l (daphnia, 48 h); EC₅₀ = 12,1 mg/l (algae, 96 h)
- to ground organisms: No data.
- to plants and land animals: No data.

12.2. Persistence and degradability

- biodegradation: No data.

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- other degradation processes: No data.

- degradation in wastewater: No data.

12.3. Bioaccumulative potential

- bio-concentration factor (BCF): Based on logKow < 3, bioaccumulation for propene is not expected.

12.4. Mobility in soil

Method: No data.

- Known or predicted distribution in environmental compartments: Quickly disperses in the atmosphere.

- surface tension: No data.

- absorption/desorption: No data.

- other physical and chemical properties: See section 9.

12.5. Results of PBT and vPvB assessment

- data from chemical safety report: Substance does not meet the criteria for PBT or vPvB classification in Annex XIII of REACH.

12.6. Other adverse effects: No data.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods: No data.

- **Waste codes:** 16 05 04* - gases in vessels under pressure (including halons) which contain hazardous substances.

- **Waste from residues:** Not applicable. There is no classic waste.

- **Contaminated packaging:** Close the empty containers and return to producer.

- **Relevant provisions:** Act on Sustainable Waste Management, Regulation on waste catalogue, Ordinance on waste management.

14. TRANSPORT INFORMATION

14.1 UN number: **1077**

14.2 UN proper shipping name: PROPYLENE (PROPENE)

14.3 Transport hazard class(es)

ADR/RID/ADN/ICAO/IATA: 2

IMDG: 2

14.4 Packing group

ADR/RID/ADN/IMDG/ICAO/IATA: Not assigned to any packaging group.

14.5 Environmental hazards

ADR, RID, ADN, ICAO/IATA: No data.

IMDG: No data.

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14.6 Special precautions for user

ADR

Transport category: 2
 Vehicle for tank carriage: FL
 Tank code: PxBN(M)
 Tunnel restriction code: B/D
 Label: 2.1
 Classification code: 2F
 Hazard identification: 23
 Special provisions: 662, TA4, TT9, CV9, CV10, CV36, S2, S20

ADN

Label: 2.1
 Additional requirements/Remarks: 2; 31
 Dangers: 2.1
 Equipment required: PP, EX, A
 Classification code: 2F
 Carriage permitted: T
 Type of tank vessel: G
 Anti-explosion protection required: YES
 Maximum degree of filling in %: 91

ICAO

Label: 2.1
 Cargo IMP code: RFG
 Passenger and cargo aircraft: not permitted
 Cargo aircraft only: 150 kg net per packaging
 ERG code: 10L

14.7 Transport in bulk condition according to MARPOL Convention, Annex II and IBC Codex

Trade name:	Not applicable.
Pollution category (according to MARPOL, Annex II):	Not applicable.
Vessel type (according to IBC Code):	Not applicable.
Special and operative requirements (according to IBC Code):	Not applicable.

RID

Transport category: 2
 Tank code: PxBN(M)
 Label: 2.1 (+13)
 Classification code: 2F
 Hazard identification: 23
 Special provisions: 662, TU38, TE22, TM6, TA4, TT9, CW9, CW10, CW36

IMDG

Subsidiary risk: 2.1
 Group of the cargo: E
 Special provisions: -
 EmS: F-D, S-U
 Segregation group: E

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15. REGULATORY INFORMATION

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

- **Applicable EU regulations:** EU Regulation No. 1907/2006 and No. 1272/2008 of the European Parliament and the Council; Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 (REACH);
- **Applicable national regulations:** Chemicals Act; Ordinance on workers protection to dangerous chemicals exposure during work, exposure limit values and biological limit values; Act on Sustainable Waste Management, Regulation on waste catalogue, Ordinance on waste management.
- **Authorization information:**
- **Restriction information:**
- **Chemical Safety Assessment carried out (CSA):** YES X NO

16. OTHER INFORMATION

Revision indicators

Section: **Subject of change:**

Full text of H- phrases, EUH- and P-phrases

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood
P210	Keep away from sparks, open flames. - No smoking
P243	Take precautionary measures against static discharge.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308+P313	IF exposed or concerned: Get medical advice/attention
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P410+P403	Protect from sunlight. Store in a well-ventilated place.

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS number	Chemical Abstract Service number
CLP	Classification, Labelling and Packaging of substances and mixtures
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report

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EC number	European Community number for identification of chemical substances commercially available in the EU
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code transport
LC50	Lethal concentration for 50% of tested organisms
LD50	Lethal concentration for 50% of tested organisms (medium lethal concentration)
OIN	Oil industry notes
PBT	Persistent, bioaccumulative and toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
STOT (SE)	Specific Target Organ Toxicity (Single Exposure)
STOT (RE)	Specific Target Organ Toxicity (Repeated Exposure)
UVCB	Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials
vPvB	Very persistent and very bioaccumulative

Statement:

This SDS is in compliance with the EU Regulation No. 1907/2006 and No. 1272/2008 of the European Parliament and the Council. It contains important user health and safety and environmental protection information. The information provided herein is not a substitute for any specification of quality and should not be deemed as a guarantee of the adequacy and applicability of this product for any purpose whatsoever. All information provided herein is based on our current knowledge and compliant with applicable legal regulations. The user is responsible for adherence to relevant legal regulations.

Data source:

1. www.hzt.hr
2. <http://echa.europa.eu/hr>
3. LOA REACH Consortium, Active Steward documents for Safety data sheet creation