SAFETY DATA SHEET

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

1.1. Product identifier

Name of the substance	Propene
Trade name of the substance	Propene, Propylene
Identification number	601-011-00-9 (Index number)
Registration number	01-2119447103-50-0054
Synonyms	None.

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

Identified uses	Use for polymer production. Use as an intermediate. Other identified uses are listed in section 15.
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Supplier

Company name	LUKOIL Neftohim Burgas AD
Address	Burgas 8104, Bulgaria
Telephone (Engineer on duty)	+359 5511 4040
Fax	+359 5511 5555
e-mail	SDS@neftochim.bg
Contact person	REACH@neftochim.bg

1.4. Emergency telephone number

+1-760-476-3961 (available 24 hours a day)

Access code 333368

General in EU	112 (Available 24 hours a day.)
National Toxicological Information Centre	+359 2 9154233 (Available 24 hours a day.)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Physical hazards

Flammable gases	Category 1A	H220 - Extremely flammable gas.
Gases under pressure	Liquefied gas	H280 - Contains gas under pressure; may explode if heated.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: propene; propylene

Hazard pictograms

Signal word Danger

Hazard statements

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

Precautionary statements

Prevention

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

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
P381 In case of leakage, eliminate all ignition sources.

Storage

P403 Store in a well-ventilated place.

Disposal

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Supplemental information on the label None.

2.3. Other hazards This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII. The substance is not included in the list established in accordance with REACH Article 59(1) for having endocrine disrupting properties.
The substance is not considered to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	Index No.	Notes
propene; propylene	> 99	115-07-1 204-062-1	01-2119447103-50-0054	601-011-00-9	
Classification: Flam. Gas 1A;H220, Press. Gas;H280					U

List of abbreviations and symbols that may be used above

Note U (Table 3.1): When put on the market gases have to be classified as "Gases under pressure", in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

Composition comments This product is registered under the REACH Regulation 1907/2006 as a mono-constituent substance. The full text for all H-statements is displayed in section 16. All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4: First aid measures

General information Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Get medical attention if any discomfort develops.

4.1. Description of first aid measures

Inhalation Remove victim to fresh air. If not breathing, clear airway and start mouth-to-mouth artificial respiration or use a bag-mask respirator. Get immediate medical attention. If the victim is having trouble breathing, transport to medical care and if available, give supplemental oxygen.

Skin contact Frostbite: Do not remove clothes, but flush with copious amounts of lukewarm water. Call an ambulance and continue to flush during transportation to hospital.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

Ingestion This material is a gas under normal atmospheric conditions and ingestion is unlikely.

4.2. Most important symptoms and effects, both acute and delayed Narcosis. Behavioural changes. Decrease in motor functions.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards Containers may explode when heated. Gas may travel considerable distance to a source of ignition and flash back. May form explosive mixtures with air.

5.1. Extinguishing media

Suitable extinguishing media Extinguish with foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
5.2. Special hazards arising from the substance or mixture	During fire, gases hazardous to health may be formed. The gas is heavier than air and may accumulate in lowered spaces.

5.3. Advice for firefighters

Special protective equipment for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or any discolouration of tanks due to fire. Move containers from fire area if you can do it without risk. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Use water spray to cool unopened containers. Cool containers with flooding quantities of water until well after fire is out.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Stay upwind. Ventilate closed spaces before entering them. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear suitable protective clothing, gloves and eye/face protection.
For emergency responders	Use personal protection recommended in Section 8 of the SDS.
6.2. Environmental precautions	Stop leak if possible without any risk. Sewers must be covered and basements and workpits evacuated. Contact local authorities in case of spillage to drain/aquatic environment.
6.3. Methods and material for containment and cleaning up	Ventilate well, stop flow of gas or liquid if possible. Remove ignition sources. Do not allow chemical to enter confined spaces such as sewers due to explosion risk. Sewers designed to preclude formation of explosive concentrations of vapour may be permitted.
6.4. Reference to other sections	For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling	Provide adequate ventilation. Avoid contact with eyes, skin, and clothing. Material may deplete oxygen from the air to dangerously low levels. Avoid breathing gas. Wear appropriate personal protective equipment. The product is extremely flammable. May form explosive mixtures with air. Avoid heat, sparks, open flames and other ignition sources. Ground container and transfer equipment to eliminate static electric sparks. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Flammable compressed gas storage. Keep away from heat, sparks and open flame. Keep in a cool, well-ventilated place. Store away from incompatible materials.
7.3. Specific end use(s)	Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Recommended monitoring procedures	Follow standard monitoring procedures.
Derived no effect levels (DNELs)	Not available.
Predicted no effect concentrations (PNECs)	Not available.

8.2. Exposure controls

Appropriate engineering controls	Observe Occupational Exposure Limits and minimise the risk of inhalation. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

General information	Use personal protective equipment as required. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.
Eye/face protection	Risk of contact: Use eye protection conforming to EN 166.
Skin protection	
- Hand protection	Risk of contact: Wear cold insulating gloves. Suitable gloves can be recommended by the glove supplier. Glove material: Neoprene; Nitrile rubber. Use gloves with breakthrough time of 480 minutes. Minimum glove thickness 0.7 mm.

- Other	Wear suitable protective clothing.
Respiratory protection	In case of inadequate ventilation, use air-supplied full-mask. Use filter type A according to EN 14387.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
Hygiene measures	Handle in accordance with good industrial hygiene and safety practices. Follow up on any medical surveillance requirements.
Environmental exposure controls	Inform appropriate managerial or supervisory personnel of all environmental releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Gas.
Form	Compressed liquefied gas.
Colour	Colourless.
Odour	Odourless.
Melting point/freezing point	-185 °C (-301 °F)
Boiling point or initial boiling point and boiling range	-48 °C (-54,4 °F) 101,325 kPa
Flammability	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	2 %
Explosive limit – upper (%)	11 %
Flash point	Not applicable.
Auto-ignition temperature	410 °C (770 °F)
Decomposition temperature	Not determined.
pH	Not determined.
Kinematic viscosity	Not applicable.
Solubility	
Solubility (water)	200 mg/l 25°C
Partition coefficient (n-octanol/water) (log value)	log Kow: 1.77
Vapour pressure	1158,57 kPa (25 °C (77 °F))
Density and/or relative density	
Density	Not determined.
Vapour density	Not applicable.
Particle characteristics	Not applicable, material is a gas.

9.2. Other information

9.2.1. Information with regard to physical hazard classes	No relevant additional information available.

9.2.2. Other safety characteristics

Limiting Oxygen Concentration (or LOC)	9,3 %

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Stable at normal conditions. Heat may cause the containers to explode.
10.3. Possibility of hazardous reactions	Hazardous polymerisation does not occur. Hazardous reactions do not occur.
10.4. Conditions to avoid	Heat, sparks, flames, elevated temperatures. Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information	Compressed liquefied gas. Direct contact with liquid can cause frostbite. Breathing can cause rapid suffocation.

Information on likely routes of exposure

Inhalation	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Ingestion	Not likely, due to the form of the product.
Symptoms	Narcosis. Behavioural changes. Decrease in motor functions.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity	Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.

Product	Species	Test Results
propene; propylene (CAS 115-07-1)		
Acute		
Inhalation		
LC50	Rat	658 mg/l, 4 Hours

Skin corrosion/irritation	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
Serious eye damage/eye irritation	Direct contact with liquefied gas may cause eye damage from frostbite.
Respiratory sensitisation	Based on available data, the classification criteria are not met.
Skin sensitisation	Based on available data, the classification criteria are not met.
Germ cell mutagenicity	Ames test: Negative.
Carcinogenicity	Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

propene; propylene (CAS 115-07-1) 3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	Based on available data, the classification criteria are not met.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Due to the physical form of the product it is not an aspiration hazard.
Mixture versus substance information	Not applicable.

11.2. Information on other hazards

Endocrine disrupting properties	This substance does not have endocrine disrupting properties with respect to human health, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.
Other information	No other specific acute or chronic health impact noted.

SECTION 12: Ecological information

12.1. Toxicity The product is a volatile organic compound which has a photochemical ozone creation potential.

Product		Species	Test Results
propene; propylene (CAS 115-07-1)			
Aquatic			
Algae	EC50	Freshwater algae	12,1 mg/l, 96 hours

12.2. Persistence and degradability	The product is easily biodegradable.
12.3. Bioaccumulative potential	Potential to bioaccumulate is low.
Partition coefficient n-octanol/water (log Kow)	log Kow: 1.77
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	Not relevant, due to the form of the product.
Mobility in general	The product is a volatile substance, which may spread in the atmosphere.
12.5. Results of PBT and vPvB assessment	This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

12.6. Endocrine disrupting properties This substance does not have endocrine disrupting properties with respect to the environment, as it does not meet the assessment criteria laid out in Regulations (EC) No 1907/2006, (EU) No 2017/2100 and (EU) 2018/605.

12.7. Other adverse effects

Substance Global Warming Potential per (Annex IV), Regulation 517/2014/EU on fluorinated greenhouse gases, as amended

propene; propylene (CAS 115-07-1) 2

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose in accordance with local regulations.

Contaminated packaging Not available.

EU waste code 16 05 04*

Disposal methods/information Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste.

SECTION 14: Transport information

ADR

14.1. UN number UN1077
14.2. UN proper shipping name PROPYLENE
14.3. Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1
Hazard No. (ADR) 23
Tunnel restriction code 2
14.4. Packing group Not applicable.
14.5. Environmental hazards No.
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

RID

14.1. UN number UN1077
14.2. UN proper shipping name PROPYLENE
14.3. Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1 (+13)
14.4. Packing group Not applicable.
14.5. Environmental hazards No.
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ADN

14.1. UN number UN1077
14.2. UN proper shipping name Propylene
14.3. Transport hazard class(es)
Class 2
Subsidiary risk -
Label(s) 2.1
14.4. Packing group Not applicable.
14.5. Environmental hazards No.
14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IATA

14.1. UN number UN1077
14.2. UN proper shipping name Propylene
14.3. Transport hazard class(es)
Class 2.1
Subsidiary risk -
14.4. Packing group Not applicable.
14.5. Environmental hazards No.
ERG Code 10L

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

14.1. UN number UN1077

14.2. UN proper shipping name PROPYLENE

14.3. Transport hazard class(es)

Class 2.1

Subsidiary risk -

14.4. Packing group Not applicable.

14.5. Environmental hazards

Marine pollutant No.

EmS F-D, S-U

14.6. Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

14.7. Maritime transport in bulk according to IMO instruments Not applicable.

SECTION 15: Regulatory information

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use, as amended - Conditions of restriction given for the associated entry number should be considered

propene; propylene (CAS 115-07-1) 40

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Not listed.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex I, as amended

Not listed.

Regulation 2019/1148 on Marketing and Use of Explosive Precursors, Annex II, as amended

Not listed.

Other regulations The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006 as amended.
Directive 2012/18/EU on major accident hazards involving dangerous substances: Part 1 (Listed Substances): Liquefied extremely flammable gases (including LPG) and natural gas

National regulations Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work, as amended. Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment	For this substance a chemical safety assessment has been carried out. Other registered uses: Manufacture of substance. Distribution of a substance. Formulation & (re) packaging of substances and mixtures. Use in polymer production. Use as an intermediate. Aerosol propellants. Fuels and fuel additives.

SECTION 16: Other information

List of abbreviations	DNEL: Derived No-Effect Level. PNEC: Predicted No-Effect Concentration. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent and very Bioaccumulative.
References	Chemical safety report.
Information on evaluation method leading to the classification of mixture	The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.
Full text of any statements, which are not written out in full under sections 2 to 15	H220 Extremely flammable gas. H280 Contains gas under pressure; may explode if heated.
Training information	Follow training instructions when handling this material.
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available at the date of revision and exclusively refer to the product in its as-delivered condition. The information and recommendations are offered for the user's consideration and examination. The logo and the name "LUKOIL oil company" may include anyone or more of LUKOIL Neftohim Burgas AD or LUKOIL or any affiliates in which they directly or indirectly hold any interest.