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

1.1. Product identifier

Name of product	Propane Art-Nr(n).: 2712ff, 0057, 0067, 70271
Name of substance	propane
Index No	601-003-00-5
EC No	200-827-9
REACH registration number	01-2119486944-21
CAS No	74-98-6

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

! Recommended intended purpose(s)

Fuel gas.
Refrigerant (R-290).
Basic substance.
Propellant.
Laboratory reagent.
Test gas.

1.3. Details of the supplier of the safety data sheet

Manufacturer/distributor

S. Zukausko str. 11, Ramuciai, Kaunas district,
LT - 54464, Lithuania
Phone + 370 37 373248
Fax. + 370 37 373198
E-mail: info@brgroup.eu
www.brgroup.eu

1.4. Emergency telephone number

Emergency advice

The Poison Information Bureau
Siltnamių str. 29, LT-2043 Vilnius
Phone +370 5 2362052;
Fax. +370 5 236 21 42,
E-mail.: info@tox.lt

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard classes and categories	Hazard Statements	Classification procedure
Flam. Gas 1	**H220**	
Liquef. Gas	**H280**	

Hazard statements for physical hazards

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

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

GHS02

Signal word
Danger

Hazard statements for physical hazards

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.

Storage

P403	Store in a well-ventilated place.

Hazardous ingredients for labeling
propane

2.3. Other hazards
Information pertaining to special dangers for human and environment
In use, may form flammable/explosive vapour-air mixture.
In high concentrations may cause asphyxiation.
Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.
Contact with liquid may cause cold burns/frostbite.

! **Results of PBT and vPvB assessment**
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

SECTION 3: Composition/ information on ingredients

3.1. Substances
CAS No 74-98-6 **propane**
EC No 200-827-9
Index No 601-003-00-5
REACH registration number 01-2119486944-21

3.2. Mixtures
not applicable

! SECTION 4: First aid measures

4.1. Description of first aid measures
General information
Remove contaminated soaked clothing immediately.
Adhere to personal protective measures when giving first aid.
Seek medical advice immediately.

In case of inhalation
Remove the casualty into fresh air and keep him immobile.
Seek medical treatment immediately.
In case of respiratory standstill give artifical respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

! **In case of skin contact**
In case of contact with skin wash off with warm water.
In case of frostbite rinse with plenty of water. Don`t remove clothing.
In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw it with lukewarm water. Apply a sterile dressing. Obtain medical assistance.

! **In case of eye contact**
Eye rinsing with water carefully while protecting unhurt eye.
Rinse cautiously with water for several minuts. Remove contact lenses, if present and easy to do. Continue rinsing.
Call for a doctor immediately.

In case of ingestion
Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed
Physician's information / possible symptoms
Shortness of breath
Anaesthetic state

4.3. Indication of any immediate medical attention and special treatment needed
Treatment (Advice to doctor)
Treat symptoms.
Monitor circulation.

! SECTION 5: Firefighting measures

5.1. Extinguishing media
! **Suitable extinguishing media**
Dry powder
Water spray jet
water mist

! **Unsuitable extinguishing media**
carbon dioxide
Full water jet

5.2. Special hazards arising from the substance or mixture
In case of fire formation of dangerous gases possible.
Formation of explosive gas mixtures in air.
In the event of fire the following can be released:
Carbon monoxide (CO)

5.3. Advice for firefighters
Special protective equipment for fire-fighters
Use breathing apparatus with independent air supply (isolated).
Wear full protective clothing.

Additional information
Cool endangered containers with water spray jet.
Exposure to fire may cause containers to rupture / explode.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.
Extinguish any other fire.

! SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

! **For non-emergency personnel**

Remove persons to safety.
Evacuate area.

! **For emergency responders**

Personal protection by wearing close-fitting protective clothing and breathing apparatus.
Keep people away and stay on the upwind side.
Eliminate all ignition sources if safe to do so.
Keep away sources of ignition.

6.2. Environmental precautions

If possible, stop flow of product.
Eliminate ignition sources.
Do not discharge into the drains/surface waters/groundwater.
Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

Ensure adequate air ventilation.
Allow to vaporise.

6.4. Reference to other sections

Safe handling: see section 7
Disposal: see section 13
Personal protection equipment: see section 8

! SECTION 7: Handling and storage

7.1. Precautions for safe handling

! **Advice on safe handling**

Use only in thoroughly ventilated areas.
Transfer and handle only in enclosed systems.
The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50°C.
Take measures against electrostatically charging.
Barrels and installations thoroughly earthing (grounding).
Use antistatic tools.
Treatment only in suitable rooms and systems.
Provide good room ventilation even at ground level (vapours are heavier than air).
Prevent cylinders from falling over.
Ensure valve protection device is correctly fitted.
Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
Open valve slowly to avoid pressure shock.
Do not allow backfeed into the container.
Suck back of water into the container must be prevented.
No water to valves, flanges and other fittings.
Purging of pipes and valves with inert gases - to avoid: water, solvents.
Containers and installations thoroughly earthing (grounding).

General protective measures

Do not inhale gases/vapours/aerosols.

Hygiene measures

At work do not eat, drink and smoke.

Advice on protection against fire and explosion
The product is combustible.
Because of risk of explosion avoid vapours getting into cellar, sewage system and holes.
Take precautionary measures against static discharges.
Formation of explosive gas mixtures in air.
Pay attention to general rules of internal fire prevention.
Use explosion-proof equipment / fittings and non-sparking tools.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep in closed original container.
Ventilate store-rooms thoroughly.
Use transportable pressure equipment.
Suitable materials: Normalised steel and carbon steel, tempered steel, aluminium alloys, stainless steel.
Valve: Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, stainless steel.

Advice on storage compatibility
Do not store with spontaneously flammable materials.
Do not store together with combustible liquids or combustible solids.
Do not store together with animal feedstuffs.
Do not store together with explosives.
Do not store together with infectious substances.
Do not store together with radioactive material.
Do not store together with toxic liquids or toxic solids.
Do not store together with food.
Do not store together with oxidizing liquids or oxidizing solids.

Further information on storage conditions
Ensure valve protection device is correctly fitted.
Keep container tightly closed and store at cool and aired place.
Prevent cylinders from falling over.
Keep container in a well-ventilated place
Protect of heat.
Storage temperature may not exceed 50°C (=122°F).

Information on storage stability
At appropriate storage unlimited stability.

7.3. Specific end use(s)
! **Recommendation(s) for intended use**
See section 1.2

! SECTION 8: Exposure controls/personal protection

8.1. Control parameters
! Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
74-98-6	Propane	REL, 8 hours	1800	1000	NIOSH, USA
74-98-6	Propane	PEL, 8 hours	1800	1000	OSHA, USA

DNEL-/PNEC-values
DNEL worker

CAS No	Substance name	Value	Code	Remark
74-98-6	propane			No information available.

DNEL Consumer

CAS No	Substance name	Value	Code	Remark
74-98-6	propane			No information available.

PNEC

CAS No	Substance name	Value	Code	Remark
74-98-6	propane			No information available.

8.2. Exposure controls

! **Respiratory protection**
Keep self contained breathing apparatus readily available for emergency use.
Do not use any filter apparatus.
In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation by edging out of air oxygen

! **Hand protection**
Leather gloves
Protective gloves complying with EN 374.
Safety gloves according EN 388

! **Eye protection**
safety goggles, in case of increased risk add protective face shield
Safety goggles with side protection complying with EN 166.

! **Other protection measures**
Safety shoes with steel toe.
Body covering work clothing, or chemical resistant suit at increased risk complying with EN 14605.

Limitation and surveillance of the environment
See chapter 7.

! **Appropriate engineering controls**
Transfer and handle only in enclosed systems.
Industrial ventilation (local ventilation).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Colour	Odour
Gaseous / liquefied under pressure.	colourless	sweetish

Odour threshold
not determined

Important health, safety and environmental information

	Value	Temperature	at	Method	Remark
pH value	not applicable				
Acid number	not applicable				
boiling point	-42,1 °C		1013 hPa		

	Value	Temperature	at	Method	Remark
melting point	-187,7 °C				
Flash point	Not applicable for gases and gas mixtures				
Vapourisation rate	Not applicable for gases and gas mixtures				
Flammable (solid)	not applicable				
Flammability (gas)					flammable.
Ignition temperature	470 °C				
Self ignition temperature	not determined				
Lower explosion limit	1,7 Vol-%				
Upper explosion limit	10,8 Vol-%				
Vapour pressure	8270 hPa	20 °C			
Relative density	0,499 g/cm3	20 °C			liquid phase
Vapour density	1,55				air = 1
Solubility in water	62,4 mg/l	20 °C			
Solubility/other					soluble in organic solvent
Partition coefficient n-octanol/water (log P O/W)	2,36				
Decomposition temperature	not determined				
Viscosity dynamic	0,102 mPa*s	20 °C			liquid phase

Oxidising properties
Keine

Explosive properties
Keine

9.2. Other information
Keine

! SECTION 10: Stability and reactivity

10.1. Reactivity
See section "Possibility of hazardous reactions".

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
Formation of explosive gas/air mixtures.
Violent reactions with air and oxidising agents.

10.4. Conditions to avoid
Formation of explosive gas/air mixtures.
Heat sources / heat - risk of bursting.
Sources of ignition.
Avoid contact with open flames, glowing metal surfaces, etc..

10.5. Incompatible materials
! **Substances to avoid**
Air, oxidiser.
For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Thermal decomposition

Remark No decomposition if used as directed.

! SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity/Irritation/Sensitization

	Value/Validation	Species	Method	Remark
LD50 acute oral	Study technically not feasible.			
LD50 acute dermal	Study technically not feasible.			
LC50 acute inhalation	> 800000 ppm (15 min)	rat (male / female)		
Skin irritation	non-irritant			
Eye irritation	non-irritant			
Skin sensitization	non-sensitizing			

	Value/Validation	Species	Method	Remark
Sensitization respiratory system	non-sensitizing			

Subacute Toxicity - Carcinogenicity

	Value	Species	Method	Validation
Subchronic Toxicity	NOAEC 9000 ppm (28 d) Inhalation 6 h/d, 7 d/w	Rat (male / female)	OECD TG 422	No effects of toxicological significance.
Mutagenicity	NOAEC. 10000 ppm (90 d) Inhalation. 6 h/d, 5 d/w	Rat	OECD 474	No experimental information on genotoxicity in vitro and in vivo available.
Reproduction-Toxicity	NOAEC 10000 ppm Inhalation. 6 h/d, 5 d/w	Rat (male / female)	OECD 413	No indication of teratogenic effects.
Carcinogenicity				Study scientifically not justified.

! **Aspiration hazard**
Not applicable for gases and gas mixtures

Experiences made from practice
May cause frostbite.
The inhalation of gas / vapour in high concentrations may cause cardiac arrhythmia.
Gases have a suffocating effect.
Inhalation causes narcotic effect/intoxication.

! SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicological effects

	Value	Species	Method	Validation
Fish	LC50 49,9 mg/l (96 h)	Fish	QSAR	
Daphnia	LC50 69,43 mg/l (48 h)	Daphnia	QSAR	
Algae	EC50 19,37 mg/l (96 h)	Algae	QSAR	
Bacteria	not determined			

12.2. Persistence and degradability

	Elimination rate	Method of analysis	Method	Validation

	Elimination rate	Method of analysis	Method	Validation
Physico-chemical degradability	At normal temperature very highly volatile or gaseous product that can be released to atmosphere. Elimination test cannot be employed.			
Biological degradability				Biodegradable

12.3. Bioaccumulative potential
Because of the n-octanol/water distribution coefficient (log K o/w) accumulation in organisms is possible.

12.4. Mobility in soil
Because of its high volatility, it is unlikely that the product soil, water caused.

12.5. Results of PBT and vPvB assessment
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Other adverse effects
GWP: 3

General regulation
Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste code No.	**Name of waste**
16 05 04*	gases in pressure containers (including halons) containing hazardous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 2008/98/EC on hazardous waste.

Recommendations for the product
Dispose of as hazardous waste.

Recommendations for packaging
Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

SECTION 14: Transport information

	ADR/RID	**IMDG**	**IATA-DGR**
14.1. UN number	1978	1978	1978
14.2. UN proper shipping name	PROPANE	PROPANE	Propane
14.3. Transport hazard class(es)	2.1	2.1	2.1
14.4. Packing group	-	-	-
14.5. Environmental hazards	No	No	No

14.6. Special precautions for user
The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
No transport as bulk according IBC - Code.

Land and inland navigation transport ADR/RID
Hazard label(s) 2.1
tunnel restriction code B/D
Classification code 2F

Marine transport IMDG
Ems: F-D, S-U

Air transport ICAO/IATA-DGR
Cargo aircraft only.
Cargo aircraft only: Package max. 150 kg.

! SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Other regulations (EU)
Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII No 40.
Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

VOC standard

VOC content	>99,9 % 20 °C 8270 hPa

15.2. Chemical Safety Assessment
The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.
For this substance a chemical safety assessment has been carried out.
An exposure scenario is not required.

SECTION 16: Other information

Recommended uses and restrictions
National and local regulations concerning chemicals shall be observed.

Further information
All declarations of safety-data-sheet refer to pure substance.
The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 7.6