MATERIAL SAFETY DATA SHEET
INSTRUMENT GRADE PROPANE FUEL

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1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Identification of the product

Product Name: **INSTRUMENT GRADE PROPANE FUEL**

Product Number: **0005700000**

1.2 Use of the product: For in vitro diagnostic use.

1.3 Company identification:

MANUFACTURER:
Instrumentation Laboratory Co.
180 Hartwell Road,
Bedford, MA 01730-2443 (USA)
Tel. +1 800 678 0710
Fax +1 781 863 9928

DISTRIBUTOR EU:
Via Roma, 103
20040 Cavenago Brianza (Italy)

DISTRIBUTOR US/CANADA:
Not applicable

E-mail address of the competent person: infosds@mail.ilww.it

1.4 Emergency phone:
+44 (0) 3700 492 795
+1 215 207 0061 (USA and Canada)

2. COMPOSITION / INFORMATION ON PRODUCT

P/N	Product name	Product classification According to 67/548/EEC and 1999/45/EEC Directives	Product classification According to 1272/2008/EC Regulation	Kit configuration
0005700000	**Instrument Grade Propane Fuel**	**F+; R12**	**Flam. Gas 1, H220** **Press. Gas, H280**	**1 x 400 g**

Disclaimer

This document is intended only as a guide to appropriate precautionary handling of this product by a trained person, or supervised by a person trained in chemical handling. The product shall not be used for purposes different from those indicated in section 1, unless having received suitable written instructions on how to handle the material. Use the product in accordance with the Good Laboratory Practice. This document cannot describe all potential dangers of use or interaction with other chemicals or materials. It is the user's responsibility for the product's safe use, the product's suitability for the intended use and the product's safe disposal. No representation or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to the information set forth herein or to the product to which the information refers. The contained information in this MSDS are in accordance with Annex II of Regulation no.1907/2006 (REACh) and in accordance with ANSI "Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets – Preparation" (ANSI Z400.1-2004) as recommended by US OSHA.

Prepared by: Chemsafe Srl

1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY

1.1 Identification of the product

Product Name:	**Instrument Grade Propane Fuel**
Product Number:	**0005700000**
Other names:	Propane
Annex VI-CLP:	Propane – Index number: 601-003-00-5
CAS number:	74-98-6
IUPAC name:	Propane

1.2 Use of the product: For in vitro diagnostic use.

1.3 Company identification:

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2. HAZARDS IDENTIFICATION

2.1 Substance classification *(see also ch. 15)*

Classified: **Flam. Gas 1, H220 - Press. Gas, H280** according to 1272/2008/EC Regulation

Classified: **F+; R12** according to 67/548/EEC and 1999/45/EEC Directives

Potential health and environmental effects

Ingestion:	May be harmful if swallowed.
Inhalation exposure:	May cause irritation.
Contact with skin:	May cause irritation.
Contact with eyes:	May cause irritation.
Sensitization:	Might cause sensitization by inhalation or skin contact.
Environmental exposure:	Might cause adverse effects for the environment. The substance does not satisfy PBT nor vPvB criteria.
Physico-chemical effects:	This product contains an extremely flammable gas under pressure; it may explode if heated.

2.2 Label elements

	According to 1272/2008/EC Regulation
Classification:	**Flam. Gas 1, H220** **Press. Gas, H280**
Labeling symbols: (signal word)	 **Danger**
Labeling risk phrases: (hazard statements)	**H220:** Extremely flammable gas. **H280:** Contains gas under pressure; may explode if heated.
Labeling safety phrases: (precautionary statements)	**P210:** Keep away from heat/sparks/open flames/hot surfaces. — No smoking. **P377:** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. **P381:** Eliminate all ignition sources if safe to do so. **P410 + P403:** Protect from sunlight. Store in a well-ventilated place.

Other labeling details: no

[For the explanation of H and P statements: see Section 16]
[For the explanation of R and S phrases: see Section 16]

2.3 Other hazards (which do not result in the classification)

Health hazards: Rapid evaporation of the liquid may cause frostbite.
High concentrations in the air can cause a deficiency of oxygen with the risk of unconsciousness or death.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Composition: Liquid (gas under pressure) propane.

3.1 Description:

Name	EINECS/ ELINCS n°	CAS n°	Conc. % w/w	Classification 67/548/EEC	Classification 1272/2008/EC
Propane	200-827-9	74-98-6	99 %	F+; R12	Flam. Gas 1, H220 Press. Gas, H280
For exposure limits see ch. 8, for phrases R and hazard statements text see ch. 16					

4. FIRST AID MEASURES

4.1 Description of the first aid measures

Ingestion: If swallowed rinse mouth with plenty of water provided person is conscious. Get medical advice if adverse symptoms appear.

Inhalation exposure: If inhaled, move person to fresh air. Get medical advice if adverse symptoms appear.

Contact with skin: Remove contaminated clothes and shoes. Wash affected area with soap or mild detergent and plenty of water. Get medical advice if adverse symptoms appear.
On frostbite do not remove clothes. Refer for medical attention.

Contact with eyes: Wash immediately with plenty of water or normal saline. Keep eyelid open with the finger. Get medical advice if adverse symptoms appear.

4.2 Most important symptoms and effects (acute and delayed)

Acute effects: Inhalation: Drowsiness. Unconsciousness.
Skin and eye contact: Possible frostbite on contact with liquid.

Delayed effects: Not foreseen.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with powder, carbon dioxide.
CO_2, dry powder.

Unsuitable extinguishing media: Never direct water jet on liquid.

5.2 Special hazards arising from the substance

Hazardous combustion products: Thermal decomposition or combustion may generate toxic and hazardous fumes of CO_x.

5.3 Advice to fire-fighters

Technical actions for protection: Water can be used to keep cylinder cool.
Combat fire from a sheltered position.

Equipment for self-protection: (fire fighters): Self-contained breathing apparatus, flame and chemical resistant clothing, boots and gloves.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions for non-emergency personnel:	Remove all ignition sources and evacuate the area. Suitable protective clothing, rubber or polythene gloves, rubber shoes, safety glasses (see Section 8). In case of accidental spilling (non in normal condition of use) the use of Personal Protection Equipment is always recommended. This PPE must be in accordance with EN criteria.
Personal precautions for emergency personnel:	Use special protective equipment (see section 8).

6.2 Environmental precautions

Do not let the product enter drainage system, surface and ground-water or soil. Contact local authorities in case of environmental release. Do not empty into drains.

6.3 Methods and material for containment and cleaning up

Containment procedures:	Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8.
Cleaning up procedure:	Ventilate the area.

[See also section 8 and 13]

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Recommendation for handling:	Wear suitable protective clothing, gloves, eye protection. Remove all ignition sources. Provide sufficient ventilation in all work areas.
Recommendation for personal hygiene:	When use do not eat, drink or smoke. Wash hands with soap and water after use.

7.2 Condition for safe storage including any incompatibilities

Risk Management measures related to:

Explosive atmosphere:	Don't expose to heat sources and non compatible materials. Avoid light exposure.
Flammability hazards:	NO open flames, NO sparks, and NO smoking. Prevent build-up of electrostatic charges (e.g., by grounding). Use non-sparking handtools.
Potential ignition sources:	Remove all ignition sources.
Ambient conditions:	Well ventilated workplace. Do not install where tank temperatures may exceed 41°C. Store at <50° C.
Containers:	Keep containers tightly closed and labelled with the name of the product.
Other storage precautions:	Keep away from food and drinks.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

TLV: (Aliphatic hydrocarbon gases) 1000 ppm as TWA; (ACGIH 2005).

OSHA PEL: TWA 1000 ppm (1800 mg/m^3).

MAK: 1000 ppm, 1800 mg/m³ (DFG 2006).

NIOSH REL: TWA 1000 ppm (1800 mg/m^3).

NIOSH IDLH: 2100 ppm 10% LEL.

8.2 Exposure Controls

8.2.1 Appropriate engineering controls

The adoption of the most appropriate engineering controls is also based on the local Risk Assessment done by the employer in its workplace conditions (use of the mixture), particularly when a standardized exposure scenario is not available (ingredients in the mixture are not yet REACH registered).

8.2.2 Individual protection measures, such as Personal Protective Equipment (PPE)

The adoption of the most appropriate Personal Protective Equipment is also based on the local Risk Assessment done by the employer in its workplace conditions (use of the mixture), particularly when a standardized exposure scenario is not available (ingredients in the mixture are not yet REACH registered).
If the results of such risk evaluation done in accordance with Directive 98/24/EEC showed that the collective and general risk management measures are not sufficient to reduce the risks and, if the exposure to the mixture cannot be reduce by other containment means, appropriate PPE must be adopted in compliance with technical EN guidance indication.

Check oxygen content before entering area. High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death.

Respiratory protection:	Respiratory protection is not required. Where risk assessment shows air-purifying respirators are appropriate, use masks with approved filter. Use only devices approved by the Competent Authorities such as NIOSH (USA) and CEN (EU).
Skin protection:	Protective clothing, rubber gloves, facial shield.
Eye protection:	Safety glasses as for EN 166.
Hand protection:	Wear gloves as for the EN 374, parts 1, 2 and 3 and the European Directive 89/89/EEC. E.g. wool glove liner covered by a neoprene glove [(1)].
Other protective systems:	Personal protective equipment (PPE) useful for reducing individual exposure.

8.2.3 Environmental exposure controls

Avoid any release into the environment.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	Liquid (cylinder pressure 7.5 atm at 21°C)
Odor:	Sweet odor
Color:	Colorless
	Value
pH:	not applicable
Boiling point/range:	not available
Flash point:	-104°C (open cup)
Explosive properties:	(% volume in air) lower: 2.2, upper: 9.5
Vapor pressure:	8.42 at 21.1°C
Density:	0.585 g/cmc at -45°C Relative Density (air=1) : 1.56 at 0°C
Solubility:	not available
Water Solubility:	not soluble
Viscosity:	not available
Vapor density:	not available
Evaporation rate:	not available

9.2 Other information

Melting point/range: -187°C

10. STABILITY AND REACTIVITY

10.1	Reactivity:	This substance is considered not reactive under the normal conditions of the usage.
10.2	Chemical stability:	The product is stable until the expiration date shown on the box and on the labels when stored at <50° C.
10.3	Possibility of hazardous reactions:	Not foreseen.
10.4	Conditions to avoid:	Keep out from hot temperature, humidity and light. NO open flames, NO sparks, and NO smoking. Check oxygen content before entering area. High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death.
10.5	Incompatible materials:	Oxidizing agents, reducing agents, strong acid agents, strong basic agents.
10.6	Hazardous decomposition products:	Thermal decomposition or combustion may include toxic and hazardous fumes of CO_X.

11. INFORMATION ON TOXICOLOGICAL EFFECTS

Effects following exposure

May cause negative effects if inhaled or swallowed.
Inhalation may cause drowsiness and unconsciousness.
SKIN AND EYE CONTACT: POSSIBLE FROSTBITE ON CONTACT WITH LIQUID.

Toxico-kinetics effects (ADME)

Absorption:	Inhalation represents the major route by which propane is absorbed systemically. Studies in human volunteers showed that blood levels of propane could be detected after exposure to 250-1,000 ppm. Compared to respiratory absorption, dermal penetration of propane can be considered to be very low. (2)
Distribution:	In mice propane is distributed in blood, liver, kidney and brain. (2)
Metabolism:	In mice propane was converted to isopropanol and acetone following inhalation. (2)
Excretion:	not available

Acute toxicity	**Value**	**m.u.**	**Effects**	
Oral:	LD50 (rat) = not available	mg/Kg		
Dermal:	LD50 (rat) = not available	mg/Kg		
Inhalation:	LC50 (rat) >1,464	mg/L/15 min		(2)
Other data:	Propane can cause CNS depression quite quickly (under 15 minutes) after exposure to about 50,000 ppm or more (model prediction).			(2)

Corrosion/Irritation effects:

Skin:	Rapid evaporation of the liquid may cause frostbite. (2) At concentrations up to 10% (100,000 ppm), propane caused no noticeable irritation. (2)
Eye:	not available
Inhalation:	not available

Sensitization:

Skin sensitization:	not available
Sensitization by inhalation:	not available
Repeated dose toxicity (experimental):	Monkeys were exposed at 750 ppm propane via inhalation for 90 days. No abnormalities were noted. (2)

CMR effects

Germinal cell mutagenicity:	Ames test:	negative	(2)
	Mouse lymphoma:	not available	
	Chromosomal aberration:	not available	
	Micronucleus test:	not available	
Carcinogenicity:	not available		
Reproductive toxicity:	not available		

Specific Target Organ Toxicity (STOT):

single exposure:	not available
repeated exposure:	not available
Aspiration hazards:	not available

Reasons for the lack of classification:

Where the substance resulted in a non-classification, this may be due to the availability of data which does not impose a classification for that specific end-point, or due to lack of data, or due to availability of inconclusive data or data which are not sufficient to get a classification as for the criteria adopted in Directives mentioned in this data sheet.

12. ECOLOGICAL INFORMATION

12.1 Toxicity	Value	m.u.
Acute toxicity with fish:	LC50 = not available	mg/l/96 hours
Acute toxicity with Daphnia Magna:	EC50 = not available	mg/l/48 hours
Acute toxicity with algae:	ErC50 = not available	mg/l/72 hours

12.2 Persistence and degradability: Propane is readily degraded by soil bacterium; within 24 hr propane was oxidized to acetone.
Vapor-phase propane will be degraded in the atmosphere by a reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 14 days.
If released into water, propane is expected to adsorb to suspended solids and sediment based upon the estimated Koc. Biodegradation in water is not expected to be an important environmental fate process.
Hydrolysis is not expected to be an important environmental fate. (2)

12.3 Bioaccumulative potential: An estimated BCF of 13 suggests the potential for bioconcentration in aquatic organisms is low. (2)

12.4 Mobility in soil: If released to soil, propane is expected to have moderate mobility based upon an estimated Koc of 460. (2)

12.5 Results of PBT and vPvB assessment: not available

12.6 Other adverse effects: not available

13. DISPOSAL CONSIDERATION

National laws on disposal must be considered, local and UE requirements for wastes recycling must be respected.
Used waste product, surplus product or spillage products shall be disposed of in accordance with national, state and local laws.

14. TRANSPORT INFORMATION

Classified for transport in accordance with ADR/RID, IMDG, and IATA regulations:

UN number: **1978**

Road transport		**Rail transport**	
Proper shipping name:	PROPANE	Proper shipping name:	PROPANE
			
ADR/RID class:	2	ADR/RID class:	2
Packaging group:	-	Packaging group:	-
Classification code:	2F	Classification code:	2F
Hazard Identification Number:	23	Hazard Identification Number:	23
Tunnel Restriction Code:	(B/D)	Tunnel Restriction Code:	(B/D)
Marine transport		**Air transport**	
Proper shipping name:	PROPANE	Proper shipping name:	PROPANE
			
IMDG class:	2.1	IATA class:	2.1
Packaging group:	-	Packaging group:	-
IMDG label:	-	IATA label:	Flamm. gas
EmS	F-D, S-U	Precautions for transport:	*Passenger And Cargo* (Limited Quantity): Forbidden; *Passenger And Cargo:* Forbidden; *Cargo Only*: P.I. = 200, Max net q.ty per pack = 150 kg; *10L*
Marine pollutant:	NO	Erg Code:	

15. REGULATORY INFORMATION

15.1 Safety, Health and Environmental regulation/legislation specific for the substance

Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (Official Journal L 183 , 29/06/1989 P. 0001 – 0008) and following amendment and National reinforcements.

Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to the personal protective equipment.

Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) Official Journal L 131 , 05/05/1998 P. 0011 – 0023.

15.2 Chemical Safety Assessment

Chemical Safety Assessment (CSA) has not been has not been compiled.

16. OTHER INFORMATION

Revisions: Edition dated 05/09/2011
Revision n. 00

Acronyms:

ACGIH:	American Conference of Governmental Industrial Hygienists
ADR:	Agreement concerning the carriage of dangerous goods by Road
BCF:	Bioaccumulative factor
CAS:	Chemical Abstract Service (division of the American Chemical Society)
CLP:	Classification, Labelling and Packaging
CMR:	Carcinogens, Mutagens, Toxic for re production substances
EINECS:	European Inventory of existing Commercial Substances
IATA:	International Air Transport Association Code
IMDG:	International Maritime Dangerous Goods Code
IUPAC:	International Union of Pure and Applied Chemistry
OSHA:	Occupational Safety and Health Administration
PPE:	Personal protective Equipment
PBT:	Persistent, Bioaccumulative and Toxic substances
RID:	Regulation concerning the International carriage of Dangerous goods by rail
TLV/TWA:	Threshold Limit Value/Threshold Weighted Average
vPvB:	very Persistent, very Bioaccumulative

Information related to the Regulation EC/1272/2008:

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
P210	Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.

Information related to the Directive 67/548/EEC:

R12	Extremely flammable.

Information on workers training: Follow criteria of Directive 98/24/EC, its amendments and National reinforcements.

Restriction of use: none

Substance under authorisation: NO

The contained information in this MSDS are in accordance with Annex I of Regulation no.453/2010 and in accordance with ANSI "Standard for Hazardous Industrial Chemicals - Material Safety Data Sheets – Preparation" (ANSI Z400.1-2004) as recommended by US OSHA.

Bibliographic references:

(1) Corn et Al., *The Protection against and Treatment of a Liquid Propane Freeze Injury: An Experimental Model*, Journal of Burn Care and Rehabilitation, Vol. 12, No. 6, pages 516-520, 3 references, 1991.

(2) HSDB Hazardous Substances Databank, Propane (CAS 74-98-6).