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

1.1 Product identifier

Propane (Sievert refillable cylinders S3000RP, RP2000, RP2012)

Chemical formula : C3H8

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

Use of the Substance/Mixture : General Industrial

Restrictions on Use : No data available.

1.3 Details of the supplier of the safety data sheet

Sievert UK Limited
Bridge Street
Holloway Bank
Wednesbury
WS10 0AW

Email enquiries@sievertuk.co.uk

1.4 Emergency Telephone Numbers (24 H)

0121 556 7181	(Monday – Thursday 8:30am - 5:00pm)
	(Friday 8:30am – 16:30pm)
0121 506 1809	(Transport Only)
01384 291 690	(Out of Hours)

1.5 Other Information

This product is exempt from the obligation to register under REACH in accordance with Article 2(7) (b).

2. HAZARDS IDENTIFICATION

2.1 Classification & labelling elements according to regulation 1272/2008 (CLP)

Regulation (EC) No 1272/2008 (CLP)	
Hazard classes / Hazard categories	**Hazard Statement**
Flammable Gas, Category 1	H220
Gases under pressure	H280

67/548/EEC or 1999/45/EC	
Hazard Characteristics	**R-phrase(s)**
Extremely flammable.	R12

2.2 Label Elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms/symbols

Signal Word : Danger

Hazard Statements:

- H220: Extremely Flammable gas.
- H280: Contains gas under pressure; may explode if heated.

HEALTH HAZARDS:

Not classified as a health hazard under GHS criteria.

ENVIRONMENTAL HAZARDS:

Not classified as an environmental hazard under GHS criteria.

Prevention:

- P210: Keep away from heat/sparks/open flame/hot surfaces- No Smoking.
- P102: Keep out of reach of children.
- P243: Take precautionary measures against static discharge.

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.
- P410: Protect from sunlight.

Labelling according to Directive 1999/45/EC

EC Symbols : F+ Extremely flammable.

EC Classification : Extremely flammable.
EC Risk Phrases : R12 Extremely flammable.
EC Safety Phrases S2 : Keep out of reach of children.
S9 : Keep container in a well-ventilated place.
S16 :Keep away from sources of ignition - no smoking.
S33 : Take precautionary measures against static discharges.

2.3 Other hazards.

Health Hazards : Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache and nausea.

High gas concentrations will displace available oxygen from the air; unconsciousness and death may occur suddenly from lack of oxygen.
Exposure to rapidly expanding gases may cause frost burns to eyes and/or skin.

Safety Hazards: Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger. Electrostatic discharge may cause fire.

3 Composition/Information on Ingredients

3.1 Substance

CAS No. : 68476-85-7

3.2 Mixtures

Preparation
A small quantity (typically <50ppm) of ethyl mercaptan or similar odorizing agent is commonly added to assist in leak detection.
Contains <0.1% 1,3 Butadiene.

Hazardous Components

Classification of components according to Regulation (EC) No 1272/2008

Chemical Name	CAS No.	EINECS	REACH Registration No.	Concentration (Volume)
Propane	68476-85-7	270-704-2	Exempt	100%

Chemical Name	Hazard Class & Category	Hazard Statement
Propane	Flam. Gas, 1; Press. Gas, Liq. Gas;	H220; H280;

Classification of components according to 67/548/EEC

Chemical Name	CAS No.	EINECS	REACH Registration No.	Symbol(s)	R-phrase(s)	Concentration Volume.
Propane	68476-85-7	270-704-2	Exempt	F+	R12	100%

As a liquefied petroleum gas, which occurs in nature and is not chemically modified, this is exempted from Titles II (Registration), V (Downstream Users) and VI (Evaluation) of the EU REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) Regulation by virtue of Article 2(7).

Additional Information : Refer to chapter 16 for full text of EC R-phrases.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures
Inhalation : Remove to fresh air. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. If heartbeat absent, give external cardiac compression.
Monitor breathing and pulse. Seek urgent medical advice.

Skin Contact : Do not remove clothing that adheres to skin due to freezing. In the event of frostbite, slowly warm the exposed area by rinsing with warm water. Otherwise: Obtain medical treatment immediately. Contaminated clothing may be a fire hazard and therefore should be soaked with water before being removed. Loosen tight clothing. Keep warm and at rest.

Eye Contact :DO NOT DELAY. Obtain medical treatment immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush eye with copious quantities of water.

Ingestion : In the unlikely event of ingestion, obtain medical attention immediately.

4.2 Most important symptoms/effects, acute& delayed

High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued exposure may result in unconsciousness and/or death.

4.3 Indication of immediate medical attention and special treatment needed

Treat symptomatically. Administer oxygen if necessary.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

5.1 Extinguishing Media

Shut off supply. If not possible and no risk to surroundings, let the fire burn itself out. Use foam, water fog for major fires. Use dry chemical powder, carbon dioxide, sand or earth for minor fires.

Unsuitable Extinguishing Media

Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2 Special hazards arising from substance or mixture

Hazardous combustion products may include: Carbon monoxide. Unidentified organic and inorganic compounds. Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapour Explosion (BLEVE). Contents are under pressure and can explode when exposed to heat or flames. The vapour is heavier than air, spreads along the ground and distant ignition is possible.

5.3 Advice for fire-fighters

Wear full protective clothing and self-contained breathing apparatus.

Additional Advice: Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Evacuate the area of all non-essential personnel. Ventilate contaminated area thoroughly. Avoid contact with spilled or released material. Immediately remove all contaminated clothing. Do not attempt to do so if clothing is adhering to skin. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter. Use appropriate containment to avoid environmental contamination. Test atmosphere for flammable gas concentrations to ensure safe working conditions before personnel are allowed to enter the area.

6.2 Environmental Precautions

Use appropriate containment to avoid environmental contamination.

6.3 Methods and Material for Containment and Clean Up

Allow to evaporate. Attempt to disperse the vapour or to direct its flow to a safe location, for example by using fog sprays. Otherwise treat as for small spillage.

Additional Advice: Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Vapour may form an explosive mixture with air. Risk of explosion. Inform the emergency services if product enters surface water drains.

7. HANDLING AND STORAGE

General Precautions : Avoid breathing vapours or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols.

7.1 Precautions for Safe Handling

This product can create a low temperature exposure hazard when released as a liquid. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Avoid prolonged or repeated contact with skin. Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire.

7.2 Conditions for safe storage, including any incompatibilities

Store only in purpose-designed, appropriately labelled pressure vessels or cylinders. Must be stored in a well ventilated area, away from sunlight, ignition sources and other sources of heat. Do not store near cylinders containing compressed oxygen or other strong oxidizers.

7.3 Cylinder Use

Sievert Cylinders containing Propane Gas are designed for vapour offtake and must be stored in the vertical position.
Protect cylinders from physical damage; do not drag, roll, slide or drop.
Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.
Keep away from heat/sparks/open flame/hot surfaces.
Do not store in temperatures above 50°C (122°F).
Empty cylinders retain product residue and can be hazardous. Do not puncture or incinerate container.

7.4 Specific End Uses : Not applicable.

Additional Information : This product is intended for use in closed systems only. Ensure that all local regulations regarding handling and storage facilities are followed.
Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication "COSHH Essentials".

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Material	Source	Long Term	Short Term	Hazard Designation
Propane	LPG EH40 WEL	**1750mg mg.m³ 1000ppm 8 hour TWA**	**2180 mg.m³ 11250ppm 15mins**	Asphyxiant.

Engineering measures

Provide natural or explosion-proof ventilation that is adequate to ensure flammable gas does not reach its lower explosive limit.

Personal protective equipment

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory protection : If operations are such that significant exposure to vapour may be anticipated, then suitable approved respiratory equipment should be worn. The use of respiratory equipment must be strictly in accordance with the manufacturers' instructions and any statutory requirements governing its selection and use. All wearers of respiratory protection must be trained in its use. The nature of the atmosphere and the working environment will determine the protection required.

High concentrations that can cause rapid suffocation are within the flammable range and should not be entered.

Eye protection. **:** Safety glasses recommended for use.

Hand protection. : Sturdy work gloves are recommended for handling cylinders.

Skin and body protection : When handling cylinders wear protective footwear.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance : Colourless. Liquid under pressure.
Odour : Distinctive and unpleasant if stenched, odourless if unstenched...

pH : Not applicable.
Initial Boiling Point and Boiling Range : Typical -42.1 °C / -43.8 °F 1,013 hPa
Freezing Point : Typical -187.6 °C / -305.7 °F.
Flash point : Typical -104 °C / -155 °F

Upper / lower Flammability Or Explosion limits	: Typical 2% -11 % in Air
Auto-ignition temperature	: Typical 450 °C / 842 °F
Density	: Typical 493 kg/m3 at 25 °C / 77 °F
Specific Gravity of Vapour	: 1.5 at 15 °C (Air = 1.0)
Vapour pressure	: 7.5 bar at 15 °C
Water solubility	: Negligible.
Solubility in other solvents	: Data not available.
n-octanol/water partition coefficient (log Pow)	: Typical 1.815.
Dynamic viscosity	: Not applicable.
Kinematic viscosity	: Not applicable.
Evaporation rate (nBuAc=1)	: Data not available
Flammability	: Extremely flammable.

9.2 Other Information

Other Information	: Not applicable.

10. STABILITY AND REACTIVITY

10.1 Reactivity	: No, product will not become self-reactive.
10.2 Chemical Stability	: Stable.
10.3 Possibility of Hazardous Reactions	**:** No hazardous, exothermic polymerization cannot occur.
10.4 Conditions to Avoid	: Heat, open flames, sparks and flammable atmospheres.
10.5 Incompatible Materials	: Strong oxidising agents.
10.6 Hazardous Decomposition Products	: Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological effects

Basis for Assessment	: Information given is based on product data, a knowledge of the components and the toxicology of similar products.
Likely Routes of Exposure	: Inhalation is the primary route of exposure although exposure may occur through skin or eye contact.
Acute Oral Toxicity	: Not applicable.
Acute Dermal Toxicity	: Not applicable.
Acute Inhalation Toxicity	: Low toxicity: LC50 >20 mg/l / 4.00 h, Rat
Skin Corrosion/Irritation	: Not irritating to skin.
Serious Eye Damage/Irritation	: Essentially non-irritating to eyes.

Respiratory Irritation	: Inhalation of vapours or mists may cause irritation to the respiratory system.
Respiratory or Skin Sensitisation	: Not expected to be a sensitiser.
Aspiration Hazard	: Not considered an aspiration hazard.
Germ Cell Mutagenicity	: Not considered a mutagenic hazard.
Carcinogenicity	: Not expected to be carcinogenic.
Reproductive and Developmental Toxicity	: Not expected to impair fertility. Not a developmental toxicant.
Specific target organ toxicity - single exposure	: High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.
Specific target organ toxicity – repeated exposure	: Low systemic toxicity on repeated exposure.

Additional Information : Rapid release of gases which are liquids under pressure may cause frost burns of exposed tissues (skin, eye) due to evaporative cooling. High gas concentrations will displace available oxygen from the air; unconsciousness and death may occur suddenly from lack of oxygen. Exposure to very high concentrations of similar materials has been associated with irregular heart rhythms and cardiac arrest.

12. ECOLOGICAL INFORMATION

Basis for Assessment	: Information given is based on product testing, and/or similar products, and/or components.
12.1 Toxicity	
Acute Toxicity	: Physical properties indicate that petroleum gases will rapidly volatilise from the aquatic environment and that acute and chronic effects would not be observed in practice.
12.2 Persistence and Degradability	: Expected to be readily biodegradable. Oxidises rapidly by photo-chemical reactions in air.
12.3 Bioaccumulative Potential	: Not expected to bioaccumulate significantly.
12.4 Mobility	: Because of their extreme volatility, air is the only environmental compartment that hydrocarbon gases will be found in.
12.5 Result of the PBT and vPvB assessment	: The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.
12.6 Other Adverse Effects	: In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods : Contact supplier if guidance is required. Return unused product in original cylinder to supplier. Do not discharge into areas where there is a risk of forming an explosive mixture with air.

Contaminated packaging : Return cylinder to supplier.

14. TRANSPORT INFORMATION

Transport Category	UN No	UN proper Shipping Name	Transport Hazard Class	Danger Label Primary Risk	Environmental Hazard
Land transport (ADR/RID)	1978	Propane	2	2.1	No
Inland waterways transport (ADN)	1978	Propane	2.1	2.1	No
Sea transport (IMDG Code)	1978	Propane	2.1	2.1	No
Air transport (IATA/ICAO)	1978	Propane	2.1 (Forbidden on passenger air-craft)	2.1	No

Special Precautions : Refer to Chapter 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

Further Information **:**Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
The transportation information is not intended to convey all specific regulatory data relating to this material.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

This material has been classified according to the requirements of the Dangerous Substances Directive 67/548/EEC as last amended by the 28th Adaptation to Technical Progress, and the Dangerous Preparations Directive 1999/45/EEC as amended by the 1st Adaptation to Technical Progress.

(Note: These directives are being replaced by the new European Regulation on **C**lassification, **L**abeling and **P**ackaging of chemical substances and mixtures. The legislation introduces throughout the EU a new system for classifying and labeling chemicals, based on the United Nations' Globally Harmonised System (UN GHS).

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

EEC Regulatory Label Requirements.

Hazard Label Data	R12	: Extremely flammable F+
R & S Phrases	S2	: Keep out of reach of children
	S9	: Keep container in a well ventilated area
	S16	: Keep away from sources of ignition – NO smoking
	S33	: Take precautionary measures against static discharges.

CLP Regulatory Label Requirements.

Hazard Label Data	H220	: Extremely Flammable gas.
	H280	: Contains gas under pressure; may explode if heated
Precautionary Phrases	P210	: Keep away from heat/sparks/open flame/hot surfaces- No Smoking.
	P102	: Keep out of reach of children.
	P243	: Take precautionary measures against static discharge.
	P377	: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
	P381	: Eliminate all ignition sources if safe to do so.
	P403	: Store in a well-ventilated place
	P410	: Protect from sunlight

Other Information

- Environmental Protection Act 1990 (as amended).
- Health and Safety at Work Act 1974.
- Consumers Protection Act 1987.
- Control of Pollution Act 1974.
- Environmental Act 1995.
- Carriage of Dangerous Goods by Road and Rail (Classification, Packaging and Labelling) Regulations.
- Chemicals (Hazard Information and Packaging for Supply) Regulations 2002.
- Control of Substances Hazardous to Health Regulations 1994 (as amended).
- Road Traffic (Carriage of Dangerous Substances in Packages) Regulations.
- Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations.
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations. Health and Safety (First Aid) Regulations 1981.
- Personal Protective Equipment (EC Directive) Regulations 1992. Personal Protective Equipment at Work Regulations 1992.
- Chemicals (Hazard Info and Packaging) Regulations 1994
- The Aerosol Dispensers Regulations 2009
- (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation)
- Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
- EH 40 “Occupational Exposure Limits”

15.2 Chemical Safety Assessment

No chemical safety assessment has been performed for this substance.

15.3 Further Cylinder Labelling Information:

Closed refillable cylinders, and non-refillable cylinders within the scope of EN 417, for fuel gases which are only released for combustion only have to bear an appropriate symbol (supply or carriage) and the risk and safety phrases concerning flammability.
Such cylinders are exempted from carrying the risk and safety phrases relating to health effects.

16. OTHER INFORMATION

Recommended Restrictions on Use (Advice Against)

This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.

Additional Information

This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

Other Information

MSDS Distribution: The information in this document should be made available to all who may handle the product.