SAFETY DATA SHEET

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

1.1. Product identifier

Product name	Salvus Hi-Pro Gas
Name of the substance	Propylene
Synonyms	None.
Product code	ANGTMAP
Issue date	19-September-2022
Version number	1.1
Revision date	-

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

Identified uses	Hand Torch Fuel
Uses advised against	None known.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier	Navigator MSL Ltd
Address	Mill Road, Sharnbrook, Bedfordshire, MK44 1NU. U.K.
E-mail address	sales@navigatormsl.com
Telephone number	+44 1234 781234

1.4. Emergency telephone number +44 1234 781234 (9:00am to 5:00pm GMT+8)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

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

Physical hazards

Flammable gases (including chemically unstable gases)	Category 1	H220 - Extremely flammable gas.
Gases under pressure	Liquefied gas	H280 - Contains gas under pressure; may explode if heated.

Hazard summary Contents under pressure. Will be easily ignited by heat, spark or flames. Heat may cause the containers to explode. May displace oxygen and cause rapid suffocation.

2.2. Label elements

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

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	In case of leakage, eliminate all ignition sources.
Storage	
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Supplemental label information	None.
2.3. Other hazards	May displace oxygen and cause rapid suffocation. Not a PBT or vPvB substance or mixture.

SECTION 3: Composition/information on ingredients

3.1. Substances

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Propylene	99.5 - 100	115-07-1 204-062-1	01-2119447103-50-0287	601-011-00-9	
Classification:	Flam. Gas 1;H220, Press. Gas;H280				U

Composition comments	Gas concentrations are in percent by volume. The full text for all H-statements is displayed in section 16.

SECTION 4: First aid measures

General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
4.1. Description of first aid measures	
Inhalation	Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
Skin contact	Not likely, due to the form of the product. If frostbite occurs, immerse affected area in warm water (not exceeding 105°F/41°C). Keep immersed for 20 to 40 minutes. Get medical attention immediately.
Eye contact	Not likely, due to the form of the product. If frostbite occurs, immediately flush eyes with plenty of warm water (not exceeding 105°F/41°C) for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms persist or occur after washing.
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	Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.
4.3. Indication of any immediate medical attention and special treatment needed	Exposure may aggravate pre-existing respiratory disorders. Provide general supportive measures and treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards	Extremely flammable gas. Contents under pressure. Pressurised container may explode when exposed to heat or flame.
5.1. Extinguishing media	
Suitable extinguishing media	Dry chemical powder. Carbon dioxide (CO_2). Water fog. Foam.
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	Extremely flammable gas. During fire, gases hazardous to health may be formed.
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	Do not extinguish fires unless gas flow can be stopped safely; explosive re-ignition may occur. Promptly isolate the scene by removing all persons from the vicinity of the incident. No action shall be taken involving any personal risk or without suitable training. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus. Stop flow of material. Use water to keep fire exposed containers cool and to protect personnel effecting shutoff. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop leak. Prevent runoff from fire control or dilution from entering streams, sewers or drinking water supply.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials. 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	Evacuate the area promptly. No action shall be taken involving any personal risk or without suitable training. In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Wear appropriate personal protective equipment (See Section 8).
For emergency responders	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up.
6.2. Environmental precautions	Should not be released into the environment. Prevent further leakage or spillage if safe to do so.
6.3. Methods and material for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil etc) away from spilled material. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed.
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	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Do not breathe gas. Avoid prolonged exposure. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO2 = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
7.2. Conditions for safe storage, including any incompatibilities	Store at temperatures not exceeding 49°C/120°F. Keep away from heat, sparks and open flame. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Protect cylinders from damage. Stored containers should be periodically checked for general condition and leakage. Store in original tightly closed container. Keep container tightly closed. Store in a well-ventilated place. Use care in handling/storage. Store away from incompatible materials (see section 10 of the SDS).
7.3. Specific end use(s)	Hand Torch Fuel.

SECTION 8: Exposure controls/personal protection PPE Regulation (EU) 2016/425

8.1. Control parameters

Occupational exposure limits

UK. Occupational Exposure Limit Value 19TH SEPTEMBER 2022

Components	Type	Value
Propylene (CAS 115-07-1)	TWA	500 ppm
Impurities	**Type**	**Value**

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.
Control banding approach	No data available.

8.2. Exposure controls

Appropriate engineering controls	Provide adequate ventilation and minimize the risk of inhalation of gas. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.
Individual protection measures, such as personal protective equipment (PPE) **EC 2016/425**	Assumes a good basic standard of occupational hygiene is implemented. Avoid contact with skin and eyes.
 Eye/ face protection	Wear eye protection with side protection (EN166).
 Skin protection	Wear appropriate personal protective equipment, avoid direct contact. Hand protection: Heat: Wear insulating gloves EN407 (heat) to standard EN388:2003 (3232) GLOVE TO REACH CONTACT COLD LEVEL 2 FOR BREAK THROUGH TIME Liquid: Wear cold insulating gloves (HEAT EN407 THERMAL EN511 GLOVE TO REACH CONTACT COLD LEVEL 2 FRO BREAKTHROUGH TIME) face shield/eye protection
 Respiratory protection	Respiratory protection is not necessary if room is well ventilated. In case of inadequate ventilation wear respiratory protection. To Class ABEK1/P3. Conforming EN14387:2004
Thermal hazards	Heat: Wear insulating gloves EN407 (heat) to standard EN388:2003 (3232) GLOVE TO REACH CONTACT COLD LEVEL 2 FOR BREAK THROUGH TIME Liquid: Wear cold insulating gloves (HEAT EN407 THERMAL EN511 GLOVE TO REACH CONTACT COLD LEVEL 2 FRO BREAKTHROUGH TIME) face shield/eye protection
Hygiene measures	Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practices.
Environmental exposure controls	Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	Gas.
Form	Compressed liquefied gas.
Colour	Colourless.
Odour	Hydrocarbon or mercaptan if odorized.
Odour threshold	Not available.
pH	Not applicable.
Melting point/freezing point	-185 °C (-301 °F)
Initial boiling point and boiling range	-48 °C (-54.4 °F)
Boiling point pressure	101.33 kPa
Flash point	-107.8 °C (-162.0 °F)
Evaporation rate	Not applicable.
Flammability (solid, gas)	Extremely flammable gas.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	2 % v/v
Flammability limit - upper (%)	11 % v/v
Vapour pressure	109.73 PSIG
Vapor pressure temp.	21 °C (69.8 °F)
Vapour density	1.5 (Air=1)
Vapor density temp.	0 °C (32 °F) (gas)
Relative density	0.52 (liquid) (H2O=1)
Solubility(ies)	384 mg/l - Slightly soluble in water.
Partition coefficient (n-octanol/water)	1.77
Auto-ignition temperature	497.22 °C (927 °F)
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not explosive.
Oxidising properties	Not oxidising.

9.2. Other information

Molecular weight	42 g/mol
Percent volatile	100 %
Surface tension	16.7 mN/m (90 °C (194 °F))

SECTION 10: Stability and reactivity

10.1. Reactivity	Incompatible materials.
10.2. Chemical stability	Stable under normal temperature conditions and recommended use.
10.3. Possibility of hazardous reactions	Polymerization will not occur. May form explosive mixture with air. This product may react with oxidizing agents.
10.4. Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Contact with incompatible materials.
10.5. Incompatible materials	Strong oxidising agents. Strong acids. Halogens.
10.6. Hazardous decomposition products	Thermal decomposition of this product can generate carbon monoxide and carbon dioxide. Hydrocarbons.

SECTION 11: Toxicological information

General information Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

Inhalation	High concentrations: Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels. Breathing of high concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness.
Skin contact	Contact with liquefied gas may cause frostbite.
Eye contact	Contact with liquefied gas may cause frostbite.
Ingestion	This material is a gas under normal atmospheric conditions and ingestion is unlikely.
Symptoms	Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite ("cold burn"). Very high exposure can cause suffocation from lack of oxygen. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themself.

11.1. Information on toxicological effects

Acute toxicity Not expected to be acutely toxic.

Components	Species	Test results
Propylene (CAS 115-07-1)		
Acute		
Inhalation		
Gas		
LC50	Rat	> 65000 ppm, 4 Hours

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/eye irritation	Based on available data, the classification criteria are not met.
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	Based on available data, the classification criteria are not met.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. Not classifiable as to carcinogenicity to humans. Based on available data, the classification criteria are not met.

IARC Monographs. Overall Evaluation of Carcinogenicity

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	Not likely, due to the form of the product.
Mixture versus substance information	No information available.
Other information	Exposure over a long period of time may cause central nervous system effects.

SECTION 12: Ecological information

12.1. Toxicity The product is not expected to be hazardous to the environment.

12.2. Persistence and degradability The product is readily biodegradable.

12.3. Bioaccumulative potential The product is not expected to bioaccumulate.

Partition coefficient n-octanol/water (log Kow)

Propylene (CAS 115-07-1)	1.77
Propane (CAS 74-98-6)	2.36

Bioconcentration factor (BCF) Not available.

12.4. Mobility in soil Not relevant, due to the form of the product.

12.5. Results of PBT and vPvB assessment Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects The product contains volatile organic compounds which have a photochemical ozone creation potential.

12.7. Additional information None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste Dispose in accordance with all applicable regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

EU waste code 16 05 04*
The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information Use the container until empty. Do not dispose of any non-empty container. Empty containers have residual vapor that is flammable and explosive. Cylinders should be emptied and returned to a hazardous waste collection point. Do not puncture or incinerate even when empty. Dispose in accordance with all applicable regulations.

Special precautions Dispose of in accordance with local regulations.

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 B/D
14.4. Packing group -
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 -
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	2.1
Subsidiary risk	-
Label(s)	2.1
14.4. Packing group	-
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	-
Label(s)	2.1
14.4. Packing group	-
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	-
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. Transport in bulk according to Annex II of Marpol and the IBC Code	Not established.
General 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. Before transporting product containers: Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

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 (EC) No. 850/2004 On persistent organic pollutants, Annex I 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 authorisation, 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

Propylene (CAS 115-07-1)

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.

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Propane (CAS 74-98-6)
Propylene (CAS 115-07-1)

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.

National regulations Follow national regulation for work with chemical agents. 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.

15.2. Chemical safety assessment No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

PBT: Persistent, bioaccumulative and toxic.
vPvB: Very Persistent and very Bioaccumulative.
DNEL: Derived No-Effect Level.
PNEC: Predicted No-Effect Concentration.
STEL: Short term exposure limit.
TWA: Time weighted average.
PEL: Permissible Exposure Limit.
LC50: Lethal Concentration, 50%.

References

HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
EPA: AQUIRE database
NLM: Hazardous Substances Data Base

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 H-statements 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 All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.

16.1. SAFETY DATA SHEET

Page: 3/4 OF 8
Version: 1.1 UPDATED Date: 19-09.2022
Exposure Controls 8.2
Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

ACCORDING TO EC-REGULATIONS EC NO 2016 /425 updated from ANNEX 11 OF REACH DIRECTIVE 89/686/EEC