

SAFETY DATA SHEET



MIXTURE PROPANE AND NORMAL BUTANE AEROSOL QUALITY

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

1.1 Product identifier

Product name : MIXTURE PROPANE AND NORMAL BUTANE AEROSOL QUALITY
UFI : SU4P-72QJ-N002-U9RT
Product description : Liquefied Hydrocarbon Gas

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

Intended Use : Propellant, Refinery process stream

Identified uses
Manufacture of substance Distribution of substance Use as an intermediate Formulation and (re)packing of substances and mixtures Use in coatings - Industrial Use in cleaning agents - Industrial Use in oil and gas field drilling and production operations - Industrial Lubricants - Industrial Use in metal working fluids/rolling oils - Industrial Blowing agents Use as binders and release agents - Industrial Use as a fuel - Industrial Functional fluids - Industrial Use in laboratories - Industrial Use in rubber production and processing Polymer processing - Industrial Water treatment chemicals - Industrial Mining chemicals Use in coatings - Professional Use in cleaning agents - Professional Use in oil and gas field drilling and production operations - Professional

1.3 Details of the supplier of the safety data sheet

Supplier : Esso Nederland B.V.
Botlekweg 121, port number 4060
3197 KA Rotterdam
The Netherlands
Supplier General Contact : +31 10 493 59 11
e-mail address of person responsible for this SDS : SDS-DS@exxonmobil.com
SDS Internet Address : www.sds.exxonmobil.com

1.4 Emergency telephone number

National advisory body/ Poison Centre : NVIC (+31) 88 755 8000
24 Hour Emergency Telephone : +31 85 888 0596 / +1-703-527-3887 (CHEMTREC)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

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

Flam. Gas 1A, H220

Press. Gas (Liq.), H280

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

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 : Not applicable.

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 3, 40

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Nota : This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	% by weight	Classification	Specific Conc. Limits, M-factors and ATEs	Type
propane	REACH #: 01-2119486944-21 EC: 200-827-9 CAS: 74-98-6	≥5 - ≤95	Flam. Gas 1A, H220 Press. Gas (Liq.), H280	-	[1] [2]
butane	REACH #: 01-2119474691-32 EC: 203-448-7 CAS: 106-97-8	≥5 - ≤95	Flam. Gas 1A, H220 Press. Gas (Liq.), H280 See Section 16 for the full text of the H statements declared above.	-	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a physical, health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. If burned by contact with hot material, molten material adhering to skin should be cooled as quickly as possible with water, and see a physician for removal of adhering material and treatment of burn. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it.
Ingestion	: Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. As this product rapidly becomes a gas when released, refer to the inhalation section.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	: Adverse symptoms may include the following: frostbite
Inhalation	: No specific data.

SECTION 4: First aid measures

- Skin contact** : Adverse symptoms may include the following:
frostbite
Local necrosis as evidenced by delayed onset of pain and tissue damage a few hours after injection.
- Ingestion** : Adverse symptoms may include the following:
frostbite

4.3 Indication of any immediate medical attention and special treatment needed

- Notes to physician** : This material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.
- Specific treatments** : No specific treatment.

See toxicological information (Section 11)

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use water fog, dry chemical or carbon dioxide (CO₂) to extinguish flames.
- Unsuitable extinguishing media** : Do not use water jet.

5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.
- Hazardous combustion products** : Incomplete combustion products, Oxides of carbon

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Use standard firefighting procedures and consider the hazards of other involved materials. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. Assure an extended cooling down period to prevent re-ignition. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

SECTION 6: Accidental release measures

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Put on appropriate personal protective equipment. Accidental releases pose a serious fire or explosion hazard.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

- : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

6.4 Reference to other sections

- : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

- Protective measures** : Thermal burn hazard - contact with hot material may cause thermal burns. Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Contact with rapidly expanding gas may cause burns or frostbite.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Static Accumulator** : This material is a static accumulator.

7.2 Conditions for safe storage, including any incompatibilities

SECTION 7: Handling and storage

Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P2	10 tonne	50 tonne

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
propane	ACGIH TLV (United States, 1/2024) Oxygen depletion [asphyxiant]
butane	ACGIH TLV (United States, 1/2024) [Butane] Explosive potential. STEL 15 minutes: 1000 ppm.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

SECTION 8: Exposure controls/personal protection

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Face shield.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- CEN standards EN 420 and EN 374 provide general requirements and lists of glove types.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. If product is hot, thermally protective, chemical resistant apron and long sleeves are recommended. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- European Committee for Standardization (CEN) standards EN 136, 140 and 405 provide respirator masks and EN 149 and 143 provide filter recommendations.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Gas. [Liquefied]
- Colour** : Colourless
- Odour** : Odourless
- Odour threshold** : Not applicable.
- pH** : Not applicable.

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SECTION 9: Physical and chemical properties

Melting point/freezing point	: -187.6°C (-305.7°F)
Boiling point or initial boiling point and boiling range	: -42 to 0°C (-43.6 to 32°F)
Flash point	: Closed cup: <-60°C (<-76°F)
Evaporation rate	: Not applicable.
Flammability	: Flammable gases - Category 1
Lower and upper explosion limit	: Lower: 1.8% Upper: 8.4%
Vapour pressure	: 1575.13 to 6750.55 mm Hg [20 °C]
Relative vapour density	: >1 [Air = 1]
Relative density	: 0.4 to 0.6
Density	: 0.589 g/cm³ [25°C (77°F)]
Solubility in water	: Negligible
Partition coefficient n-octanol/ water (log Pow)	: Not applicable.
Auto-ignition temperature	: 287°C (548.6°F)
Decomposition temperature	: Not available.
Viscosity	: Not available.
<u>Particle characteristics</u>	
Median particle size	: Not applicable.

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
10.5 Incompatible materials	: Strong oxidisers
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
MIXTURE PROPANE AND NORMAL BUTANE AEROSOL QUALITY	LD50 Inhalation Gas.	Rat	1443 mg/l	15 minutes

Conclusion/Summary

SECTION 11: Toxicological information

Inhalation : Minimally Toxic. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 403

Dermal : Minimally Toxic. No end point data for material.

Oral : Minimally Toxic. No end point data for material.

Acute toxicity estimates

N/A

Irritation/Corrosion

Conclusion/Summary

Skin : Negligible irritation to skin at ambient temperatures. No end point data for material.

Eyes : May cause mild, short-lasting discomfort to eyes. No end point data for material.

Respiratory : Negligible hazard at ambient/normal handling temperatures. No end point data for material.

Respiratory or skin sensitization

Conclusion/Summary

Skin : Not expected to be a skin sensitizer. No end point data for material.

Respiratory : Not expected to be a respiratory sensitizer. No end point data for material.

Mutagenicity

Conclusion/Summary : Not expected to be a germ cell mutagen. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 471 473 474 476 478

Carcinogenicity

Conclusion/Summary : Not expected to cause cancer. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 453

Reproductive toxicity

Conclusion/Summary : Not expected to be a reproductive toxicant. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 413 414 422

Specific target organ toxicity (single exposure)

Conclusion/Summary : Not expected to cause organ damage from a single exposure. No end point data for material.

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Target organs
MIXTURE PROPANE AND NORMAL BUTANE AEROSOL QUALITY	Not applicable.	-

Conclusion/Summary : Not expected to cause organ damage from prolonged or repeated exposure. Data available. Based on test data for structurally similar materials. Test(s) equivalent or similar to OECD Guideline 413 422 453

Aspiration hazard

Conclusion/Summary : Not expected to be an aspiration hazard. Based on physico-chemical properties of the material. No end point data for material.

Information on likely routes of exposure : Not available.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Contains no substance(s) known to have endocrine disrupting properties that affect human health

11.2.2 Other information

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SECTION 11: Toxicological information

Product : Simple asphyxiant: Acts by displacing oxygen in the lungs thereby diminishing the supply of oxygen available to the blood and tissues. Symptoms include shortness of breath, rapid heart rate, incoordination, lethargy, headaches, nausea, vomiting, and disorientation. Continued lack of oxygen may result in convulsions, loss of consciousness and death. Since exercise increases the tissue need for oxygen, symptoms will occur more quickly during exertion in an oxygen-deficient environment. Oxygen in enclosed spaces should be maintained at 21 percent by volume. May cause central nervous system disorder (e.g., narcosis involving a loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Exposure to this material, or one of its components, in situations where there is the potential for high levels, such as in confined spaces or with abuse, may result in abnormal heart rhythm (arrhythmia). High-level exposure to hydrocarbons (above occupational exposure limits) may initiate arrhythmia in a worker that is undergoing stress or is taking a heart-stimulating substance such as epinephrine, a nasal decongestant, or an asthma or cardiovascular drug.

Section 12. Ecological information

The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

12.1 Toxicity

Conclusion/Summary

Acute toxicity : Not expected to be harmful to aquatic organisms.
Chronic toxicity : Not expected to demonstrate chronic toxicity to aquatic organisms

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Qualifier	Media
MIXTURE PROPANE AND NORMAL BUTANE AEROSOL QUALITY	Ready Biodegradability	<60 % - 28 days	data for similar materials	water

Biodegradability : Material -- Expected to be readily biodegradable.
Atmospheric Oxidation : Material -- Expected to degrade at a moderate rate in air

12.3 Bioaccumulative potential

Conclusion/Summary : Material -- Potential to bioaccumulate is low.

12.4 Mobility in soil

Mobility : Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Contains no substance(s) known to have endocrine disrupting properties that affect the environment

12.7 Other adverse effects

Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
16 05 04*	gases in pressure containers (including halons) containing hazardous substances





NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Empty pressure vessels should be returned to the supplier. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1965	UN1965	UN1965	UN1965
14.2 UN proper shipping name	(propane, butane)	(propane, butane)	(propane, butane)	(propane, butane)
14.3 Transport hazard class(es)	2	2	2.1	2.1
Label(s) / Mark(s)				
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	No.	No.	No.	No.

Flash point <-60 °C C.C.

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SECTION 14: Transport information

14.6 Special precautions for user : Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

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 Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 3, 40

Other EU regulations

Explosive precursors : Not applicable.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P2

National regulations

Inventory list

Australia inventory (AIIIC)	: All components are listed or exempted.
Canada inventory (DSL-NDSL)	: All components are listed or exempted.
China inventory (IECSC)	: All components are listed or exempted.
Japan inventory (CSCL)	: All components are listed or exempted.
Japan inventory (Industrial Safety and Health Act)	: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC)	: All components are listed or exempted.
Philippines inventory (PICCS)	: All components are listed or exempted.
Korea inventory (KECI)	: All components are listed or exempted.
Taiwan Chemical Substances Inventory (TCSI)	: All components are listed or exempted.
United States inventory (TSCA 8b)	: All components are active or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments are still required.

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SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

- : ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DMEL = Derived Minimal Effect Level
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- N/A = Not available
- PBT = Persistent, Bioaccumulative and Toxic
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number
- SGG = Segregation Group
- vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Flam. Gas 1A, H220	On basis of test data
Press. Gas (Liq.), H280	On basis of test data

Full text of abbreviated H statements

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

Full text of classifications [CLP/GHS]

Flam. Gas 1A	FLAMMABLE GASES - Category 1A
Press. Gas (Liq.)	GASES UNDER PRESSURE - Liquefied gas

Date of issue/ Date of revision : 6 November 2024

Date of previous issue : No previous edition

Version : 1

Product code : 1149953

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Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Manufacture of substance
List of use descriptors : **Identified use name:** Manufacture of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Sector of end use: SU03, SU08, SU09, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC04
Environmental contributing scenarios : **General exposures** - ERC01, ERC04
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Processes and activities covered by the exposure scenario : Manufacture of the substance or use as an intermediate, process chemical or extracting agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (ncluding marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Distribution of substance

List of use descriptors : **Identified use name:** Distribution of substance
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC02, ERC03, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Environmental contributing scenarios : **General exposures** - ERC01, ERC02, ERC03, ERC04, ERC05, ERC06a, ERC06b, ERC06c, ERC06d, ERC07

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09, PROC15

Processes and activities covered by the exposure scenario : Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its sampling, storage, unloading distribution and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use as an intermediate
List of use descriptors : **Identified use name:** Use as an intermediate
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Sector of end use: SU03, SU08, SU09
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC06a
Environmental contributing scenarios : **General exposures** - ERC06a
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC15
Processes and activities covered by the exposure scenario : Use of substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Formulation and (re)packing of substances and mixtures
List of use descriptors : **Identified use name:** Formulation and (re)packing of substances and mixtures
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC02
Environmental contributing scenarios : **General exposures - ERC02**
Health Contributing scenarios : **General measures applicable to all activities -** PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09, PROC14, PROC15
Processes and activities covered by the exposure scenario : Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, tableting, compression, pelletisation, extrusion, large and small scale packing, sampling, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in coatings - Industrial

List of use descriptors : **Identified use name:** Use in coatings - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC15
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures** - ERC04

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC15

Processes and activities covered by the exposure scenario : Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in cleaning agents - Industrial

List of use descriptors : **Identified use name:** Use in cleaning agents - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures** - ERC04

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC10, PROC13

Processes and activities covered by the exposure scenario : Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in oil and gas field drilling and production operations - Industrial

List of use descriptors : **Identified use name:** Use in oil and gas field drilling and production operations - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures** - ERC04

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b

Processes and activities covered by the exposure scenario : Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Lubricants - Industrial
List of use descriptors : **Identified use name:** Lubricants - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04, ERC07
Environmental contributing scenarios : **General exposures** - ERC04, ERC07
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17, PROC18

Processes and activities covered by the exposure scenario	: Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of machinery/engines and similar articles, reworking on reject articles, equipment maintenance and disposal of wastes.
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Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	: Not applicable.
Amounts used	: Not applicable.
Frequency and duration of use	: Not applicable.
Environment factors not influenced by risk management	: Not applicable.
Other operational conditions of use affecting environmental exposure	: Not applicable.
Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: Not applicable.
Organisational measures to prevent/limit release from site	: Not applicable.
Conditions and measures related to municipal sewage treatment plant	: Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in metal working fluids/rolling oils - Industrial
List of use descriptors : **Identified use name:** Use in metal working fluids/rolling oils - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04
Environmental contributing scenarios : **General exposures** - ERC04
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC05, PROC07, PROC08a, PROC08b, PROC09, PROC10, PROC13, PROC17

Processes and activities covered by the exposure scenario : Covers the use in formulated MWFs/rolling oils including transfer operations, rolling and annealing activities, cutting/machining activities, automated and manual application of corrosion protections (including brushing, dipping and spraying), equipment maintenance, draining and disposal of waste oils.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Blowing agents
List of use descriptors : **Identified use name:** Blowing agents
Process Category: PROC01, PROC02, PROC03, PROC08b, PROC09, PROC12
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04
Environmental contributing scenarios : **General exposures** - ERC04
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC08b, PROC09, PROC12

Processes and activities covered by the exposure scenario : Use as a blowing agent for rigid and flexible foams, including material transfers, mixing and injection, curing, cutting, storage and packing.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.
Conditions and measures related to external treatment of waste for disposal : Not applicable.

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Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use as binders and release agents - Industrial

List of use descriptors : **Identified use name:** Use as binders and release agents - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC06, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC14
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures** - ERC04

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC06, PROC07, PROC08a, PROC08b, PROC10, PROC13, PROC14

Processes and activities covered by the exposure scenario : Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use as a fuel - Industrial
List of use descriptors : **Identified use name:** Use as a fuel - Industrial
Process Category: PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07
Environmental contributing scenarios : **General exposures** - ERC07
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC08a, PROC08b, PROC16

Processes and activities covered by the exposure scenario : Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.
Conditions and measures related to external treatment of waste for disposal : Not applicable.

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Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Functional fluids - Industrial

List of use descriptors : **Identified use name:** Functional fluids - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC07

Environmental contributing scenarios : **General exposures** - ERC07

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC09

Processes and activities covered by the exposure scenario : Use as functional fluids e.g. cable oils, transfer oils, coolants, insulators, refrigerants, hydraulic fluids in industrial equipment including maintenance and related material transfers.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in laboratories - Industrial
List of use descriptors : **Identified use name:** Use in laboratories - Industrial
Process Category: PROC15
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04
Environmental contributing scenarios : **General exposures** - ERC04
Health Contributing scenarios : **General measures applicable to all activities** - PROC15

Processes and activities covered by the exposure scenario	: Use of the substance within laboratory settings, including material transfers and equipment cleaning
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Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	: Not applicable.
Amounts used	: Not applicable.
Frequency and duration of use	: Not applicable.
Environment factors not influenced by risk management	: Not applicable.
Other operational conditions of use affecting environmental exposure	: Not applicable.
Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: Not applicable.
Organisational measures to prevent/limit release from site	: Not applicable.
Conditions and measures related to municipal sewage treatment plant	: Not applicable.
Conditions and measures related to external treatment of waste for disposal	: Not applicable.

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Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in rubber production and processing

List of use descriptors : **Identified use name:** Use in rubber production and processing
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC15, PROC21
Sector of end use: SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC01, ERC04, ERC06d

Environmental contributing scenarios : **General exposures** - ERC01, ERC04, ERC06d

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC07, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC15, PROC21

Processes and activities covered by the exposure scenario	: Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber additives, vulcanising, cooling and finishing.
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Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Polymer processing - Industrial

List of use descriptors : **Identified use name:** Polymer processing - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC21
Sector of end use: SU03, SU10
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04

Environmental contributing scenarios : **General exposures** - ERC04

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC05, PROC06, PROC08a, PROC08b, PROC09, PROC13, PROC14, PROC21

Processes and activities covered by the exposure scenario	: Processing of formulated polymers including material transfers, additives handling (e.g. pigments, stabilisers, fillers, plasticisers, etc.), moulding, curing and forming activities, material re-works, storage and associated maintenance.
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Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Water treatment chemicals - Industrial

List of use descriptors : **Identified use name:** Water treatment chemicals - Industrial
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC03, ERC04

Environmental contributing scenarios : **General exposures** - ERC03, ERC04

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC13

Processes and activities covered by the exposure scenario : Covers the use of the substance for the treatment of water at industrial facilities in open and closed systems.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Industrial

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Mining chemicals
List of use descriptors : **Identified use name:** Mining chemicals
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09
Sector of end use: SU03
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC04
Environmental contributing scenarios : **General exposures** - ERC04
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC09
Processes and activities covered by the exposure scenario : Covers the use of the substance in extraction processes at mining operations, including material transfers, winning and separation activities, and substance recovery and disposal.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities

General measures (flammability)

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in coatings - Professional
List of use descriptors : **Identified use name:** Use in coatings - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC15, PROC19
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d
Environmental contributing scenarios : **General exposures** - ERC08a, ERC08d
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC05, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC15, PROC19

Processes and activities covered by the exposure scenario	: Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.
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Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics	: Not applicable.
Amounts used	: Not applicable.
Frequency and duration of use	: Not applicable.
Environment factors not influenced by risk management	: Not applicable.
Other operational conditions of use affecting environmental exposure	: Not applicable.
Technical conditions and measures at process level (source) to prevent release	: Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil	: Not applicable.
Organisational measures to prevent/limit release from site	: Not applicable.
Conditions and measures related to municipal sewage treatment plant	: Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in cleaning agents - Professional

List of use descriptors : **Identified use name:** Use in cleaning agents - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC19
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08a, ERC08d

Environmental contributing scenarios : **General exposures** - ERC08a, ERC08d

Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b, PROC10, PROC11, PROC13, PROC19

Processes and activities covered by the exposure scenario : Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.

Amounts used : Not applicable.

Frequency and duration of use : Not applicable.

Environment factors not influenced by risk management : Not applicable.

Other operational conditions of use affecting environmental exposure : Not applicable.

Technical conditions and measures at process level (source) to prevent release : Not applicable.

Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.

Organisational measures to prevent/limit release from site : Not applicable.

Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100%

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

Annex to the extended Safety Data Sheet (eSDS)

Professional

Identification of the substance or mixture

Product definition : Mixture
Code : 1149953
Product name : PD AEROSOL QUALITY LPG (PROPANE / N-BUTANE) (EU)

Section 1 - Title

Short title of the exposure scenario : Use in oil and gas field drilling and production operations - Professional
List of use descriptors : **Identified use name:** Use in oil and gas field drilling and production operations - Professional
Process Category: PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b
Sector of end use: SU22
Subsequent service life relevant for that use: No.
Environmental Release Category: ERC08d
Environmental contributing scenarios : **General exposures** - ERC08d
Health Contributing scenarios : **General measures applicable to all activities** - PROC01, PROC02, PROC03, PROC04, PROC08a, PROC08b
Processes and activities covered by the exposure scenario : Oil field well drilling operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

Section 2 - Exposure controls

Contributing scenario controlling environmental exposure for 1: General exposures

Product characteristics : Not applicable.
Amounts used : Not applicable.
Frequency and duration of use : Not applicable.
Environment factors not influenced by risk management : Not applicable.
Other operational conditions of use affecting environmental exposure : Not applicable.
Technical conditions and measures at process level (source) to prevent release : Not applicable.
Technical on-site conditions and measures to reduce or limit discharges, air emissions and releases to soil : Not applicable.
Organisational measures to prevent/limit release from site : Not applicable.
Conditions and measures related to municipal sewage treatment plant : Not applicable.

Conditions and measures related to external treatment of waste for disposal : Not applicable.

Conditions and measures related to external recovery of waste : Not applicable.

Contributing scenario controlling worker exposure for 2: General measures applicable to all activities**General measures (flammability)**

Risks from the physicochemical hazards of substances, such as flammability or explosiveness can be controlled by implementing risk management measures at the workplace. It is recommended to follow the Dangerous Substances and Explosion Atmospheres Regulations (DSEAR) and The Equipment and Protective Systems Intended for use in Potentially Explosive Atmosphere Regulations (EPS). Based on the implementation of a selection of handling and storage risk management measures for the identified uses, the risk can be regarded as controlled to an acceptable level.

Use in contained systems. Avoid all possible sources of ignition (spark or flame). - No smoking. Handle in well ventilated area to prevent formation of explosive atmosphere. Use equipment and protective systems approved for flammable substances. Restrict line velocity during pumping to avoid generation of electrostatic discharge. Ground/bond container and receiving equipment. Use non-sparking tools. Refer to relevant technical standards / EU regulations / national regulations. Review SDS for additional advice..

Product characteristics : Liquified gas

Concentration of substance in mixture or article : Covers percentage substance in the product up to 100 %.

Frequency and duration of use/exposure : Covers daily exposures up to 8 hours (unless stated differently)

Conditions and measures related to personal protection, hygiene and health evaluation

Advice on general occupational hygiene : Assumes a good basic standard of occupational hygiene is implemented

Section 3 - Exposure estimation and reference to its source

Website: : Not applicable.

Exposure estimation and reference to its source - Environment: 1: General exposures

Exposure assessment (environment): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Exposure estimation and reference to its source - Workers: 2: General measures applicable to all activities

Exposure assessment (human): : Not applicable.

Exposure estimation and reference to its source : Not applicable.

Section 4 - Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Environment : Not applicable.

Health : Available hazard data do not support the need for a DNEL to be established for other health effects.
Risk management measures are based on qualitative risk characterisation.

Additional good practice advice beyond the REACH CSA

Environment : Not available.

Health : Not available.

MIXTURE PROPANE AND NORMAL BUTANE AEROSOL QUALITY