

**Danger**



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

#### 1.1. Product identifier

Trade name : Propan DIN 51622, druckverflüssigt  
SDS no : Propan DIN 51622, druckverflüssigt  
UFI : C0YK-X4JS-3006-597D

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

Relevant identified uses : Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use, under controlled conditions.  
Perform risk assessment prior to use.

Uses advised against : Consumer use.  
Uses other than those listed above are not supported, contact your supplier for more information on other uses.

#### 1.3. Details of the supplier of the safety data sheet

Company identification : SWF Gase AG  
Altgasse 63  
CH-6340 - Schweiz  
T +41 415100420  
[www.swf-gase.ch](http://www.swf-gase.ch)  
[info@swf-gase.ch](mailto:info@swf-gase.ch)

#### 1.4. Emergency telephone number

Emergency telephone number : +41 415100421  
24 hours a day, 7 days a week

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

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

|                  |                                      |      |
|------------------|--------------------------------------|------|
| Physical hazards | Flammable gases, Category 1A         | H220 |
|                  | Gases under pressure : Liquefied gas | H280 |

#### 2.2. Label elements

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

Hazard pictograms (CLP)



GHS02

Signal word (CLP)

: Danger

Hazard statements (CLP)

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

## Precautionary statements (CLP)

- 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 : P403 - Store in a well-ventilated place.

## 2.3. Other hazards

Asphyxiant in high concentrations.  
These high concentrations are within the flammability range.  
Contact with liquid may cause cold burns/frostbite.  
Not classified as PBT or vPvB.  
The substance/mixture has no endocrine disrupting properties.

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name          | Product identifier                                                                                 | %        | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---------------|----------------------------------------------------------------------------------------------------|----------|-----------------------------------------------------------------|
| propane       | CAS-No.: 74-98-6<br>EC-No.: 200-827-9<br>EC Index-No.: 601-003-00-5<br>REACH-no: 01-2119486944-21  | 51 – 100 | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |
| propylene     | CAS-No.: 115-07-1<br>EC-No.: 204-062-1<br>EC Index-No.: 601-011-00-9<br>REACH-no: 01-2119447103-50 | ≤ 49     | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |
| butane        | CAS-No.: 106-97-8<br>EC-No.: 203-448-7<br>EC Index-No.: 601-004-00-0<br>REACH-no: 01-2119474691-32 | ≤ 5      | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |
| (Z)-but-2-ene | CAS-No.: 590-18-1<br>EC-No.: 209-673-7<br>EC Index-No.: 601-012-00-4<br>REACH-no: *3               | ≤ 5      | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |
| (E)-but-2-ene | CAS-No.: 624-64-6<br>EC-No.: 210-855-3<br>EC Index-No.: 601-012-00-4<br>REACH-no: *3               | ≤ 5      | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |
| but-1-ene     | CAS-No.: 106-98-9<br>EC-No.: 203-449-2<br>EC Index-No.: 601-012-00-4<br>REACH-no: 01-2119456615-34 | ≤ 5      | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |
| isobutane     | CAS-No.: 75-28-5<br>EC-No.: 200-857-2<br>EC Index-No.: 601-004-00-0<br>REACH-no: 01-2119485395-27  | ≤ 5      | Flam. Gas 1A, H220<br>Press. Gas (Liq.), H280                   |

Full text of H- and EUH-statements: see section 16

Contains no other components or impurities which will influence the classification of the product.

\*1: Listed in Annex IV / V REACH, exempted from registration.

\*3: Registration not required: Substance manufactured or imported < 1t/y.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- Inhalation : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped.
- Skin contact : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance.
- Eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes.
- Ingestion : Ingestion is not considered a potential route of exposure.

### 4.2. Most important symptoms and effects, both acute and delayed

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.  
See section 11.

### 4.3. Indication of any immediate medical attention and special treatment needed

None.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media : Shutting off the source of the gas is the preferred method of control.  
Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

### 5.2. Special hazards arising from the substance or mixture

- Specific hazards : Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : Carbon monoxide.
- Reactivity : This mixture contains components with the following reactivity : Can form explosive mixture with air. May react violently with oxidants.

### 5.3. Advice for firefighters

- Specific methods : Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.  
Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.  
If possible, stop flow of product.  
Use water spray or fog to knock down fire fumes if possible.  
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus.  
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.  
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters. EN 15090 Footwear for firefighters. EN 443 Helmets for fire fighting in buildings and other structures.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

- : Act in accordance with local emergency plan.
- Try to stop release.
- Evacuate area.
- Eliminate ignition sources.
- Ensure adequate air ventilation.
- Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
- Stay upwind.

See section 8 of the SDS for more information on personal protective equipment

For emergency responders

- : Monitor concentration of released product.
- Consider the risk of potentially explosive atmospheres.
- Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
- See section 5.3 of the SDS for more information.

### 6.2. Environmental precautions

Try to stop release.

### 6.3. Methods and material for containment and cleaning up

Ventilate area.

### 6.4. Reference to other sections

See also sections 8 and 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Safe use of the product

- : Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment.
- Purge air from system before introducing gas.
- Take precautionary measures against static discharge.
- Keep away from ignition sources (including static discharges).
- Consider the use of only non-sparking tools.
- Ensure equipment is adequately earthed.
- The product must be handled in accordance with good industrial hygiene and safety procedures.
- Only experienced and properly instructed persons should handle gases under pressure.
- Consider pressure relief device(s) in gas installations.
- Ensure the complete gas system was (or is regularly) checked for leaks before use.
- Do not smoke while handling product.
- Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
- Avoid suck back of water, acid and alkalis.
- Do not breathe gas.
- Avoid release of product into work area.

## Safe handling of the gas receptacle

- : Refer to supplier's container handling instructions.
- Do not allow backfeed into the container.
- Protect containers from physical damage; do not drag, roll, slide or drop.
- When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
- Leave valve protection caps, when provided, in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
- If user experiences any difficulty operating valve discontinue use and contact supplier.
- Never attempt to repair or modify container valves or safety relief devices.
- Damaged valves should be reported immediately to the supplier.
- Keep container valve outlets clean and free from contaminants particularly oil and water.
- Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
- Close container valve after each use and when empty, even if still connected to equipment.
- Never attempt to transfer gases from one cylinder/container to another.
- Never use direct flame or electrical heating devices to raise the pressure of a container.
- Do not remove or deface labels provided by the supplier for the identification of the content of the container.
- Suck back of water into the container must be prevented.
- Open valve slowly to avoid pressure shock.

## 7.2. Conditions for safe storage, including any incompatibilities

- Segregate from oxidant gases and other oxidants in store.
- All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere.
- Observe all regulations and local requirements regarding storage of containers.
- Containers should not be stored in conditions likely to encourage corrosion.
- Container valve guards or caps, when provided, should be in place.
- Containers should be stored in the vertical position and properly secured to prevent them from falling over.
- Stored containers should be periodically checked for general condition and leakage.
- Keep container below 50°C in a well ventilated place.
- Store containers in location free from fire risk and away from sources of heat and ignition.
- Keep away from combustible materials.

## 7.3. Specific end use(s)

None.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| propane (74-98-6)                      |                                                                                                                            |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Austria - Occupational Exposure Limits |                                                                                                                            |
| Local name                             | Propan (R 290)                                                                                                             |
| MAK (OEL TWA)                          | 1800 mg/m <sup>3</sup>                                                                                                     |
|                                        | 1000 ppm                                                                                                                   |
| MAK (OEL STEL)                         | 3600 mg/m <sup>3</sup> (3x 60(Mow) min)                                                                                    |
|                                        | 2000 ppm (3x 60(Mow) min)                                                                                                  |
| Regulatory reference                   | BGBI. II Nr. 330/2024                                                                                                      |
| Belgium - Occupational Exposure Limits |                                                                                                                            |
| Local name                             | Hydrocarbures aliphatiques sous forme gazeuse: (Alcanes C1-C3) # Alifatische koolwaterstoffen in gas-vorm: Alkanen (C1-C3) |



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|                                                   |                                                                                                                                                                                   |
|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| propane (74-98-6)                                 |                                                                                                                                                                                   |
| OEL TWA                                           | 1000 ppm                                                                                                                                                                          |
| Regulatory reference                              | Koninklijk besluit/Arrêté royal 16/11/2023                                                                                                                                        |
| Bulgaria - Occupational Exposure Limits           |                                                                                                                                                                                   |
| Local name                                        | Пропан                                                                                                                                                                            |
| OEL TWA                                           | 1800 mg/m³                                                                                                                                                                        |
| Regulatory reference                              | Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.) |
| Denmark - Occupational Exposure Limits            |                                                                                                                                                                                   |
| Local name                                        | Propan (Flaskegas)                                                                                                                                                                |
| 8-timers grænseværdi (OEL TWA)                    | 1800 mg/m³                                                                                                                                                                        |
|                                                   | 1000 ppm                                                                                                                                                                          |
| Korttidsgrænseværdi (OEL STEL)*                   | 3600 mg/m³                                                                                                                                                                        |
|                                                   | 2000 ppm                                                                                                                                                                          |
| Regulatory reference                              | BEK nr 1619 af 19/12/2024                                                                                                                                                         |
| Estonia - Occupational Exposure Limits            |                                                                                                                                                                                   |
| Local name                                        | Propaan                                                                                                                                                                           |
| OEL TWA                                           | 1800 mg/m³                                                                                                                                                                        |
|                                                   | 1000 ppm                                                                                                                                                                          |
| Regulatory reference                              | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)                                                                                                      |
| Finland - Occupational Exposure Limits            |                                                                                                                                                                                   |
| Local name                                        | Propaani                                                                                                                                                                          |
| HTP (OEL TWA)                                     | 1500 mg/m³                                                                                                                                                                        |
|                                                   | 800 ppm                                                                                                                                                                           |
| HTP (OEL STEL)                                    | 2000 mg/m³                                                                                                                                                                        |
|                                                   | 1100 ppm                                                                                                                                                                          |
| Remark                                            | Happea syrjäyttämällä tukahduttavat kaasut.                                                                                                                                       |
| Regulatory reference                              | HTP-ARVOT 2025 (Sosiaali- ja terveysministeriö)                                                                                                                                   |
| Germany - Occupational Exposure Limits (TRGS 900) |                                                                                                                                                                                   |
| Local name                                        | Propan                                                                                                                                                                            |
| AGW (OEL TWA)                                     | 1800 mg/m³                                                                                                                                                                        |
|                                                   | 1000 ppm                                                                                                                                                                          |
| Peak exposure limitation factor                   | 4(II)                                                                                                                                                                             |
| Remark                                            | DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)                                                                                  |
| Regulatory reference                              | TRGS900                                                                                                                                                                           |



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| propane (74-98-6)                       |                                                                                                                                                                                                                                                           |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Greece - Occupational Exposure Limits   |                                                                                                                                                                                                                                                           |
| Local name                              | Προπάνιο                                                                                                                                                                                                                                                  |
| OEL TWA                                 | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                    |
|                                         | 1000 ppm                                                                                                                                                                                                                                                  |
| Regulatory reference                    | Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους                                                                                                                   |
| Ireland - Occupational Exposure Limits  |                                                                                                                                                                                                                                                           |
| Local name                              | Aliphatic hydrocarbon gases Alkanes (C1-C3): Propane                                                                                                                                                                                                      |
| Remark                                  | Advisory OELV (Advisory Occupational Exposure Limit Values), Asphx. (Gaseous chemical substances which may not produce significant physiological effects in the exposed employee, but when present in high concentrations will act as simple asphyxiants) |
| Regulatory reference                    | Chemical Agents Code of Practice 2024                                                                                                                                                                                                                     |
| Latvia - Occupational Exposure Limits   |                                                                                                                                                                                                                                                           |
| Local name                              | Propāns                                                                                                                                                                                                                                                   |
| OEL TWA                                 | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                    |
|                                         | 1000 ppm                                                                                                                                                                                                                                                  |
| Regulatory reference                    | Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).                                                                                                                        |
| Poland - Occupational Exposure Limits   |                                                                                                                                                                                                                                                           |
| Local name                              | Propan                                                                                                                                                                                                                                                    |
| NDS (OEL TWA)                           | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                    |
| Regulatory reference                    | Dz. U. 2024 poz. 1017 wraz z późn. zm.                                                                                                                                                                                                                    |
| Portugal - Occupational Exposure Limits |                                                                                                                                                                                                                                                           |
| Local name                              | Propano                                                                                                                                                                                                                                                   |
| Remark                                  | Asfixia                                                                                                                                                                                                                                                   |
| Regulatory reference                    | Norma Portuguesa NP 1796:2014                                                                                                                                                                                                                             |
| Romania - Occupational Exposure Limits  |                                                                                                                                                                                                                                                           |
| Local name                              | Propan                                                                                                                                                                                                                                                    |
| OEL TWA                                 | 1400 mg/m <sup>3</sup>                                                                                                                                                                                                                                    |
|                                         | 778 ppm                                                                                                                                                                                                                                                   |
| OEL STEL                                | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                    |
|                                         | 1000 ppm                                                                                                                                                                                                                                                  |
| Regulatory reference                    | Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)                                                                                                                                                                                              |
| Slovenia - Occupational Exposure Limits |                                                                                                                                                                                                                                                           |
| Local name                              | propan                                                                                                                                                                                                                                                    |
| OEL TWA                                 | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                    |

| propane (74-98-6)                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                | 1000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| OEL STEL                                       | 7200 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 4000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Regulatory reference                           | Uradni list RS, št. 26/2025 z dne 18.4.2025 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Spain - Occupational Exposure Limits           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | Propano                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| VLA-ED (OEL TWA)                               | 1000 ppm Hidrocarburos alifáticos alcanos (C1 – C4) y sus mezclas, gases (Butano; Etano; Metano; Propano)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Regulatory reference                           | Límites de Exposición Profesional para Agentes Químicos en España 2025. INSHT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Iceland - Occupational Exposure Limits         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | Própan (flöskugas)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| OEL TWA                                        | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 1000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Regulatory reference                           | Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Norway - Occupational Exposure Limits          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | Propan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Grenseverdi (OEL TWA)                          | 900 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                                | 500 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Regulatory reference                           | FOR-2024-04-05-581                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| North Macedonia - Occupational Exposure Limits |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | Пропан                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| OEL TWA                                        | 1800 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 1000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| KTV                                            | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| OEL STEL*                                      | 7200 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 4000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Remark                                         | (KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност |
| Regulatory reference                           | Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)                                                                                                                                                                                                                                                                                                                                                                                                                                |



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| propane (74-98-6)                          |                                                                                    |
|--------------------------------------------|------------------------------------------------------------------------------------|
| Switzerland - Occupational Exposure Limits |                                                                                    |
| Local name                                 | Propane / Propan                                                                   |
| MAK (OEL TWA)                              | 1800 mg/m <sup>3</sup>                                                             |
|                                            | 1000 ppm                                                                           |
| KZGW (OEL STEL)                            | 7200 mg/m <sup>3</sup>                                                             |
|                                            | 4000 ppm                                                                           |
| Remark                                     | NIOSH                                                                              |
| Regulatory reference                       | www.suva.ch, 18.06.2025                                                            |
| Turkey - Occupational Exposure Limits      |                                                                                    |
| Local name                                 | Propan                                                                             |
| OEL TWA                                    | 1800 mg/m <sup>3</sup>                                                             |
|                                            | 1000 ppm                                                                           |
| Regulatory reference                       | 12 Ağustos 2013 Tarihli ve 28733 Sayılı Resmi Gazete (Değişik:RG-20/10/2023-32345) |
| USA - ACGIH® - Threshold Limit Values      |                                                                                    |
| Local name                                 | Propane                                                                            |
| Remark (ACGIH®)                            | TLV® Basis: Asphyxia                                                               |
| Regulatory reference                       | ACGIH 2025                                                                         |

| propylene (115-07-1)                   |                                             |
|----------------------------------------|---------------------------------------------|
| Belgium - Occupational Exposure Limits |                                             |
| Local name                             | Propylène # Propeen                         |
| OEL TWA                                | 875 mg/m <sup>3</sup>                       |
|                                        | 500 ppm                                     |
| Regulatory reference                   | Koninklijk besluit/Arrêté royal 16/11/2023  |
| Denmark - Occupational Exposure Limits |                                             |
| Local name                             | Propen (Propylen)                           |
| 8-timers grænseværdi (OEL TWA)         | 172 mg/m <sup>3</sup>                       |
|                                        | 100 ppm                                     |
| Korttidsgrænseværdi (OEL STEL)*        | 344 mg/m <sup>3</sup>                       |
|                                        | 200 ppm                                     |
| Regulatory reference                   | BEK nr 1619 af 19/12/2024                   |
| Finland - Occupational Exposure Limits |                                             |
| Local name                             | Propyleeni                                  |
| HTP (OEL TWA)                          | 500 ppm                                     |
| Remark                                 | Happea syrjäyttämällä tukahduttavat kaasut. |



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|                                          |                                                                                                                                                                                                                                                           |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| propylene (115-07-1)                     |                                                                                                                                                                                                                                                           |
| Regulatory reference                     | HTP-ARVOT 2025 (Sosiaali- ja terveystieteiden ministeriö)                                                                                                                                                                                                 |
| Ireland - Occupational Exposure Limits   |                                                                                                                                                                                                                                                           |
| Local name                               | Propylene                                                                                                                                                                                                                                                 |
| OEL TWA                                  | 500 ppm                                                                                                                                                                                                                                                   |
| Remark                                   | Advisory OELV (Advisory Occupational Exposure Limit Values), Asphx. (Gaseous chemical substances which may not produce significant physiological effects in the exposed employee, but when present in high concentrations will act as simple asphyxiants) |
| Regulatory reference                     | Chemical Agents Code of Practice 2024                                                                                                                                                                                                                     |
| Latvia - Occupational Exposure Limits    |                                                                                                                                                                                                                                                           |
| Local name                               | Propilēns (propēns)                                                                                                                                                                                                                                       |
| OEL TWA                                  | 100 mg/m³                                                                                                                                                                                                                                                 |
| Regulatory reference                     | Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).                                                                                                                        |
| Lithuania - Occupational Exposure Limits |                                                                                                                                                                                                                                                           |
| Local name                               | Propenas (propilenas)                                                                                                                                                                                                                                     |
| IPRV (OEL TWA)                           | 900 mg/m³                                                                                                                                                                                                                                                 |
|                                          | 500 ppm                                                                                                                                                                                                                                                   |
| Regulatory reference                     | LIETUVOS HIGIENOS NORMA HN 23:2011 (Nr. V-695/A1-272, 2018-06-12)                                                                                                                                                                                         |
| Poland - Occupational Exposure Limits    |                                                                                                                                                                                                                                                           |
| Local name                               | Propen                                                                                                                                                                                                                                                    |
| NDS (OEL TWA)                            | 2000 mg/m³                                                                                                                                                                                                                                                |
| NDSch (OEL STEL)                         | 8600 mg/m³                                                                                                                                                                                                                                                |
| Regulatory reference                     | Dz. U. 2024 poz. 1017 wraz z późn. zm.                                                                                                                                                                                                                    |
| Portugal - Occupational Exposure Limits  |                                                                                                                                                                                                                                                           |
| Local name                               | Propileno                                                                                                                                                                                                                                                 |
| OEL TWA                                  | 500 ppm                                                                                                                                                                                                                                                   |
| Remark                                   | A4 (Agente não classificável como carcinogénico no Homem)                                                                                                                                                                                                 |
| Regulatory reference                     | Norma Portuguesa NP 1796:2014                                                                                                                                                                                                                             |
| Spain - Occupational Exposure Limits     |                                                                                                                                                                                                                                                           |
| Local name                               | Propileno                                                                                                                                                                                                                                                 |
| VLA-ED (OEL TWA)                         | 500 ppm                                                                                                                                                                                                                                                   |
| Regulatory reference                     | Límites de Exposición Profesional para Agentes Químicos en España 2025. INSHT                                                                                                                                                                             |
| Sweden - Occupational Exposure Limits    |                                                                                                                                                                                                                                                           |
| Local name                               | Propen                                                                                                                                                                                                                                                    |
| NGV (OEL TWA)                            | 900 mg/m³                                                                                                                                                                                                                                                 |
|                                          | 500 ppm                                                                                                                                                                                                                                                   |



# Propan DIN 51622, druckverflüssigt

Reference number: Propan DIN 51622, druckverflüssigt

| propylene (115-07-1)                       |                                                                                                                     |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Regulatory reference                       | Arbetsmiljöverkets föreskrifter och allmänna råd (AFS 2023:14) om gränsvärden för luftvägsexponering i arbetsmiljön |
| Switzerland - Occupational Exposure Limits |                                                                                                                     |
| Local name                                 | Propylène / Propen                                                                                                  |
| MAK (OEL TWA)                              | 17500 mg/m <sup>3</sup>                                                                                             |
|                                            | 10000 ppm                                                                                                           |
| Regulatory reference                       | www.suva.ch, 18.06.2025                                                                                             |
| USA - ACGIH® - Threshold Limit Values      |                                                                                                                     |
| Local name                                 | Propylene                                                                                                           |
| ACGIH® TLV® TWA                            | 860 mg/m <sup>3</sup>                                                                                               |
|                                            | 500 ppm                                                                                                             |
| Remark (ACGIH®)                            | TLV® Basis: Asphyxia; URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)                               |
| Regulatory reference                       | ACGIH 2025                                                                                                          |

| butane (106-97-8)                       |                                                                                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Belgium - Occupational Exposure Limits  |                                                                                                                                                                                   |
| Local name                              | Butane, tous isomères: n-butane # Butaan, alle isomeren: n-butaan                                                                                                                 |
| OEL STEL                                | 2370 mg/m <sup>3</sup>                                                                                                                                                            |
|                                         | 980 ppm                                                                                                                                                                           |
| Regulatory reference                    | Koninklijk besluit/Arrêté royal 16/11/2023                                                                                                                                        |
| Bulgaria - Occupational Exposure Limits |                                                                                                                                                                                   |
| Local name                              | n-Бутан                                                                                                                                                                           |
| OEL TWA                                 | 1900 mg/m <sup>3</sup>                                                                                                                                                            |
| Regulatory reference                    | Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.) |
| Croatia - Occupational Exposure Limits  |                                                                                                                                                                                   |
| Local name                              | Butan                                                                                                                                                                             |
| GVI (OEL TWA)                           | 1450 mg/m <sup>3</sup>                                                                                                                                                            |
|                                         | 600 ppm                                                                                                                                                                           |
| KGV I (OEL STEL)                        | 1810 mg/m <sup>3</sup>                                                                                                                                                            |
|                                         | 750 ppm                                                                                                                                                                           |
| Regulatory reference                    | Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)                    |
| Denmark - Occupational Exposure Limits  |                                                                                                                                                                                   |
| Local name                              | n-Butan (Flaskegas)                                                                                                                                                               |



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Reference number: Propan DIN 51622, druckverflüssigt

|                                                          |                                                                                                  |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <b>butane (106-97-8)</b>                                 |                                                                                                  |
| 8-timers grænseværdi (OEL TWA)                           | 1200 mg/m <sup>3</sup>                                                                           |
|                                                          | 500 ppm                                                                                          |
| Korttidsgrænseværdi (OEL STEL)*                          | 2400 mg/m <sup>3</sup>                                                                           |
|                                                          | 1000 ppm                                                                                         |
| Regulatory reference                                     | BEK nr 1619 af 19/12/2024                                                                        |
| <b>Estonia - Occupational Exposure Limits</b>            |                                                                                                  |
| Local name                                               | n-butaan                                                                                         |
| OEL TWA                                                  | 1500 mg/m <sup>3</sup>                                                                           |
|                                                          | 800 ppm                                                                                          |
| Regulatory reference                                     | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)                     |
| <b>Finland - Occupational Exposure Limits</b>            |                                                                                                  |
| Local name                                               | n-Butaani                                                                                        |
| HTP (OEL TWA)                                            | 1900 mg/m <sup>3</sup>                                                                           |
|                                                          | 800 ppm                                                                                          |
| HTP (OEL STEL)                                           | 2400 mg/m <sup>3</sup>                                                                           |
|                                                          | 1000 ppm                                                                                         |
| Remark                                                   | Happea syrjäyttämällä tukahduttavat kaasut.                                                      |
| Regulatory reference                                     | HTP-ARVOT 2025 (Sosiaali- ja terveysministeriö)                                                  |
| <b>France - Occupational Exposure Limits</b>             |                                                                                                  |
| Local name                                               | n-Butane                                                                                         |
| VLEP 8h (OEL TWA)                                        | 1900 mg/m <sup>3</sup>                                                                           |
|                                                          | 800 ppm                                                                                          |
| Remark                                                   | Valeurs recommandées/admises                                                                     |
| Regulatory reference                                     | Circulaire du Ministère du travail (réf.: INRS ED 6443, 2022; Outil65)                           |
| <b>Germany - Occupational Exposure Limits (TRGS 900)</b> |                                                                                                  |
| Local name                                               | Butan                                                                                            |
| AGW (OEL TWA)                                            | 2400 mg/m <sup>3</sup>                                                                           |
|                                                          | 1000 ppm                                                                                         |
| Peak exposure limitation factor                          | 4(II)                                                                                            |
| Remark                                                   | DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission) |
| Regulatory reference                                     | TRGS900                                                                                          |
| <b>Greece - Occupational Exposure Limits</b>             |                                                                                                  |
| Local name                                               | Βουτάνιο                                                                                         |
| OEL TWA                                                  | 2350 mg/m <sup>3</sup>                                                                           |
|                                                          | 1000 ppm                                                                                         |



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|                                         |                                                                                                                                         |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| butane (106-97-8)                       |                                                                                                                                         |
| Regulatory reference                    | Π.Δ. 90/1999 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους |
| Hungary - Occupational Exposure Limits  |                                                                                                                                         |
| Local name                              | n-BUTÁN                                                                                                                                 |
| AK (OEL TWA)                            | 2350 mg/m³                                                                                                                              |
| CK (OEL STEL)                           | 9400 mg/m³                                                                                                                              |
| Remark                                  | N (Irritáló anyagok, egyszerű fojtógázok, csekély egészségkárosító hatással bíró anyagok)                                               |
| Regulatory reference                    | 5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről        |
| Ireland - Occupational Exposure Limits  |                                                                                                                                         |
| Local name                              | Butane, all isomers: Butane                                                                                                             |
| OEL STEL                                | 1000 ppm                                                                                                                                |
| Remark                                  | Advisory OELV (Advisory Occupational Exposure Limit Values)                                                                             |
| Regulatory reference                    | Chemical Agents Code of Practice 2024                                                                                                   |
| Latvia - Occupational Exposure Limits   |                                                                                                                                         |
| Local name                              | Butāns (kas satur vairāk nekā 0,1 % butadiēna)                                                                                          |
| OEL TWA                                 | 300 mg/m³                                                                                                                               |
| Remark                                  | Carc. 1A; Muta. 1B                                                                                                                      |
| Regulatory reference                    | Ministru kabineta 2008. gada 29. septembra noteikumi Nr. 803 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 190).    |
| Poland - Occupational Exposure Limits   |                                                                                                                                         |
| Local name                              | Butan                                                                                                                                   |
| NDS (OEL TWA)                           | 1900 mg/m³                                                                                                                              |
| NDSch (OEL STEL)                        | 3000 mg/m³                                                                                                                              |
| Regulatory reference                    | Dz. U. 2024 poz. 1017 wraz z późn. zm.                                                                                                  |
| Portugal - Occupational Exposure Limits |                                                                                                                                         |
| Local name                              | Butano, todos os isómeros                                                                                                               |
| OEL STEL                                | 1000 ppm                                                                                                                                |
| Regulatory reference                    | Norma Portuguesa NP 1796:2014                                                                                                           |
| Slovakia - Occupational Exposure Limits |                                                                                                                                         |
| Local name                              | Bután s obsahom ≥ 0,1% butadiénu (n-bután)                                                                                              |
| NPHV (OEL TWA)                          | 2400 mg/m³                                                                                                                              |
|                                         | 1000 ppm                                                                                                                                |
| Remark                                  | Kategória karcinogénnych faktorov 1A – Dokázaný karcinogén pre ľudí.                                                                    |
| Regulatory reference                    | Nariadenie vlády č. 356/2006 Z. z. (121/2024 Z. z.)                                                                                     |



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| butane (106-97-8)                              |                                                                                                                                             |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Slovenia - Occupational Exposure Limits        |                                                                                                                                             |
| Local name                                     | butan                                                                                                                                       |
| OEL TWA                                        | 2400 mg/m <sup>3</sup>                                                                                                                      |
|                                                | 1000 ppm                                                                                                                                    |
| OEL STEL                                       | 9600 mg/m <sup>3</sup>                                                                                                                      |
|                                                | 4000 ppm                                                                                                                                    |
| Regulatory reference                           | Uradni list RS, št. 26/2025 z dne 18.4.2025 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu |
| Spain - Occupational Exposure Limits           |                                                                                                                                             |
| Local name                                     | Butano                                                                                                                                      |
| VLA-ED (OEL TWA)                               | 1000 ppm Hidrocarburos alifáticos alcanos (C1 – C4) y sus mezclas, gases (Butano; Etano; Metano; Propano)                                   |
| Regulatory reference                           | Límites de Exposición Profesional para Agentes Químicos en España 2025. INSHT                                                               |
| United Kingdom - Occupational Exposure Limits  |                                                                                                                                             |
| Local name                                     | Butane                                                                                                                                      |
| WEL TWA (OEL TWA)                              | 1450 mg/m <sup>3</sup>                                                                                                                      |
|                                                | 600 ppm                                                                                                                                     |
| WEL STEL (OEL STEL)                            | 1810 mg/m <sup>3</sup>                                                                                                                      |
|                                                | 750 ppm                                                                                                                                     |
| Remark                                         | Carc (Capable of causing cancer and/or heritable genetic damage, only applies if Butane contains more than 0.1% of buta-1,3-diene)          |
| Regulatory reference                           | EH40/2005 (Fourth edition, 2020). HSE                                                                                                       |
| Iceland - Occupational Exposure Limits         |                                                                                                                                             |
| Local name                                     | n-Bútan                                                                                                                                     |
| OEL TWA                                        | 1200 mg/m <sup>3</sup>                                                                                                                      |
|                                                | 500 ppm                                                                                                                                     |
| Regulatory reference                           | Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)                                                   |
| Norway - Occupational Exposure Limits          |                                                                                                                                             |
| Local name                                     | Butan                                                                                                                                       |
| Grenseverdi (OEL TWA)                          | 600 mg/m <sup>3</sup>                                                                                                                       |
|                                                | 250 ppm                                                                                                                                     |
| Regulatory reference                           | FOR-2024-04-05-581                                                                                                                          |
| North Macedonia - Occupational Exposure Limits |                                                                                                                                             |
| Local name                                     | Бутан                                                                                                                                       |
| OEL TWA                                        | 2400 mg/m <sup>3</sup>                                                                                                                      |
|                                                | 1000 ppm                                                                                                                                    |

| butane (106-97-8)                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KTV                                        | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| OEL STEL*                                  | 9600 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                            | 4000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Remark                                     | (KTV) краткотрајна вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотрајни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотрајната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност |
| Regulatory reference                       | Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Switzerland - Occupational Exposure Limits |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                 | n-Butane / n-Butan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| MAK (OEL TWA)                              | 1900 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                            | 800 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| KZGW (OEL STEL)                            | 7600 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                            | 3200 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Regulatory reference                       | www.suva.ch, 18.06.2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| USA - ACGIH® - Threshold Limit Values      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                 | Butane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ACGIH® TLV® STEL                           | 2370 mg/m <sup>3</sup> (EX - Explosion hazard)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                            | 1000 ppm (EX - Explosion hazard)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remark (ACGIH®)                            | TLV® Basis: CNS impair                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Regulatory reference                       | ACGIH 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| (Z)-but-2-ene (590-18-1)               |                                                             |
|----------------------------------------|-------------------------------------------------------------|
| Belgium - Occupational Exposure Limits |                                                             |
| Local name                             | Butène (tous isomères) # Buteen (alle isomeren)             |
| OEL TWA                                | 583 mg/m <sup>3</sup>                                       |
|                                        | 250 ppm                                                     |
| Regulatory reference                   | Koninklijk besluit/Arrêté royal 16/11/2023                  |
| Ireland - Occupational Exposure Limits |                                                             |
| Local name                             | Butenes, all isomers incl. Isobutene                        |
| OEL TWA                                | 250 ppm                                                     |
| Remark                                 | Advisory OELV (Advisory Occupational Exposure Limit Values) |
| Regulatory reference                   | Chemical Agents Code of Practice 2024                       |

| <b>(Z)-but-2-ene (590-18-1)</b>                |                                                             |
|------------------------------------------------|-------------------------------------------------------------|
| <b>Portugal - Occupational Exposure Limits</b> |                                                             |
| Local name                                     | Butenos, todos os isómeros                                  |
| OEL TWA                                        | 250 ppm                                                     |
| Regulatory reference                           | Norma Portuguesa NP 1796:2014                               |
| <b>USA - ACGIH® - Threshold Limit Values</b>   |                                                             |
| Local name                                     | cis-2-Butene                                                |
| ACGIH® TLV® TWA                                | 574 mg/m³                                                   |
|                                                | 250 ppm                                                     |
| Remark (ACGIH®)                                | TLV® Basis: Body weight                                     |
| Regulatory reference                           | ACGIH 2025                                                  |
| <b>(E)-but-2-ene (624-64-6)</b>                |                                                             |
| <b>Belgium - Occupational Exposure Limits</b>  |                                                             |
| Local name                                     | Butène (tous isomères) # Buteen (alle isomeren)             |
| OEL TWA                                        | 583 mg/m³                                                   |
|                                                | 250 ppm                                                     |
| Regulatory reference                           | Koninklijk besluit/Arrêté royal 16/11/2023                  |
| <b>Ireland - Occupational Exposure Limits</b>  |                                                             |
| Local name                                     | Butenes, all isomers incl. Isobutene                        |
| OEL TWA                                        | 250 ppm                                                     |
| Remark                                         | Advisory OELV (Advisory Occupational Exposure Limit Values) |
| Regulatory reference                           | Chemical Agents Code of Practice 2024                       |
| <b>Portugal - Occupational Exposure Limits</b> |                                                             |
| Local name                                     | Butenos, todos os isómeros                                  |
| OEL TWA                                        | 250 ppm                                                     |
| Regulatory reference                           | Norma Portuguesa NP 1796:2014                               |
| <b>USA - ACGIH® - Threshold Limit Values</b>   |                                                             |
| Local name                                     | trans-2-Butene                                              |
| ACGIH® TLV® TWA                                | 574 mg/m³                                                   |
|                                                | 250 ppm                                                     |
| Remark (ACGIH®)                                | TLV® Basis: Body weight                                     |
| Regulatory reference                           | ACGIH 2025                                                  |

| but-1-ene (106-98-9)                    |                                                             |
|-----------------------------------------|-------------------------------------------------------------|
| Belgium - Occupational Exposure Limits  |                                                             |
| Local name                              | Butène (tous isomères) # Buteen (alle isomeren)             |
| OEL TWA                                 | 583 mg/m <sup>3</sup>                                       |
|                                         | 250 ppm                                                     |
| Regulatory reference                    | Koninklijk besluit/Arrêté royal 16/11/2023                  |
| Ireland - Occupational Exposure Limits  |                                                             |
| Local name                              | Butenes, all isomers: n-Butene                              |
| OEL TWA                                 | 250 ppm                                                     |
| Remark                                  | Advisory OELV (Advisory Occupational Exposure Limit Values) |
| Regulatory reference                    | Chemical Agents Code of Practice 2024                       |
| Portugal - Occupational Exposure Limits |                                                             |
| Local name                              | Butenos, todos os isómeros                                  |
| OEL TWA                                 | 250 ppm                                                     |
| Regulatory reference                    | Norma Portuguesa NP 1796:2014                               |
| USA - ACGIH® - Threshold Limit Values   |                                                             |
| Local name                              | n-Butene                                                    |
| ACGIH® TLV® TWA                         | 574 mg/m <sup>3</sup>                                       |
|                                         | 250 ppm                                                     |
| Remark (ACGIH®)                         | TLV® Basis: Body weight                                     |
| Regulatory reference                    | ACGIH 2025                                                  |

  

| isobutane (75-28-5)                    |                                                                              |
|----------------------------------------|------------------------------------------------------------------------------|
| Belgium - Occupational Exposure Limits |                                                                              |
| Local name                             | Butane, tous isomères: iso-butane # Butaan, alle isomeren: iso-butaan        |
| OEL STEL                               | 2370 mg/m <sup>3</sup>                                                       |
|                                        | 980 ppm                                                                      |
| Regulatory reference                   | Koninklijk besluit/Arrêté royal 16/11/2023                                   |
| Estonia - Occupational Exposure Limits |                                                                              |
| Local name                             | Isobutaan (2-metüülpropaan)                                                  |
| OEL TWA                                | 1900 mg/m <sup>3</sup>                                                       |
|                                        | 800 ppm                                                                      |
| Regulatory reference                   | Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13) |
| Finland - Occupational Exposure Limits |                                                                              |
| Local name                             | i-Butaani (2-Metyylipropaani)                                                |
| HTP (OEL TWA)                          | 1900 mg/m <sup>3</sup>                                                       |



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Reference number: Propan DIN 51622, druckverflüssigt

|                                                   |                                                                                                                                      |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| isobutane (75-28-5)                               |                                                                                                                                      |
|                                                   | 800 ppm                                                                                                                              |
| HTP (OEL STEL)                                    | 2400 mg/m³                                                                                                                           |
|                                                   | 1000 ppm                                                                                                                             |
| Remark                                            | Happea syrjäyttämällä tukahduttavat kaasut.                                                                                          |
| Regulatory reference                              | HTP-ARVOT 2025 (Sosiaali- ja terveysministeriö)                                                                                      |
| Germany - Occupational Exposure Limits (TRGS 900) |                                                                                                                                      |
| Local name                                        | Isobutan                                                                                                                             |
| AGW (OEL TWA)                                     | 2400 mg/m³                                                                                                                           |
|                                                   | 1000 ppm                                                                                                                             |
| Peak exposure limitation factor                   | 4(II)                                                                                                                                |
| Remark                                            | DFG - Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)                                     |
| Regulatory reference                              | TRGS900                                                                                                                              |
| Ireland - Occupational Exposure Limits            |                                                                                                                                      |
| Local name                                        | Butane, all isomers: Isobutane                                                                                                       |
| OEL STEL                                          | 1000 ppm                                                                                                                             |
| Remark                                            | Advisory OELV (Advisory Occupational Exposure Limit Values)                                                                          |
| Regulatory reference                              | Chemical Agents Code of Practice 2024                                                                                                |
| Latvia - Occupational Exposure Limits             |                                                                                                                                      |
| Local name                                        | Izobutāns (kas satur vairāk nekā 0,1 % butadiēna)                                                                                    |
| Remark                                            | Carc. 1A; Muta. 1B                                                                                                                   |
| Regulatory reference                              | Ministru kabineta 2008. gada 29. septembra noteikumi Nr. 803 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 190). |
| Portugal - Occupational Exposure Limits           |                                                                                                                                      |
| Local name                                        | Butano, todos os isómeros                                                                                                            |
| OEL STEL                                          | 1000 ppm                                                                                                                             |
| Regulatory reference                              | Norma Portuguesa NP 1796:2014                                                                                                        |
| Slovakia - Occupational Exposure Limits           |                                                                                                                                      |
| Local name                                        | Bután s obsahom ≥ 0,1% butadiénu (izo-bután)                                                                                         |
| NPHV (OEL TWA)                                    | 2400 mg/m³                                                                                                                           |
|                                                   | 1000 ppm                                                                                                                             |
| Remark                                            | Kategória karcinogénnych faktorov 1A – Dokázaný karcinogén pre ľudí.                                                                 |
| Regulatory reference                              | Nariadenie vlády č. 356/2006 Z. z. (121/2024 Z. z.)                                                                                  |
| Slovenia - Occupational Exposure Limits           |                                                                                                                                      |
| Local name                                        | izobutan                                                                                                                             |
| OEL TWA                                           | 2400 mg/m³                                                                                                                           |

| isobutane (75-28-5)                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                | 1000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| OEL STEL                                       | 9600 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 4000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Regulatory reference                           | Uradni list RS, št. 26/2025 z dne 18.4.2025 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| North Macedonia - Occupational Exposure Limits |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | изобутан                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| OEL TWA                                        | 2400 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 1000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| KTV                                            | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| OEL STEL*                                      | 9600 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 4000 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Remark                                         | (KTV) краткотrajna вредност (КТВ) значи концентрација на опасни хемиски супстанции во воздухот на работното место внатре во зона на дишење, на која работникот без опасност по здравјето може да е изложен на покусо време. Изложеноста на краткотrajни вредности може да трае највеќе 15 минути и не смее да се повтори повеќе од четирипати во работната смена, при што меѓу две изложености на оваа концентрација мора да измине најмалку 60 минути. Краткотrajната вредност е изразена во mg/m <sup>3</sup> или во ml/m <sup>3</sup> (ppm) а е дадена како многукратни дозволени пречекорувања на граничната вредност |
| Regulatory reference                           | Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија” бр.46/10)                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Switzerland - Occupational Exposure Limits     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | iso-Butane / iso-Butan                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MAK (OEL TWA)                                  | 1900 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 800 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| KZGW (OEL STEL)                                | 7600 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                | 3200 ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Regulatory reference                           | www.suva.ch, 18.06.2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| USA - ACGIH® - Threshold Limit Values          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Local name                                     | Isobutane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ACGIH® TLV® STEL                               | 2370 mg/m <sup>3</sup> (EX - Explosion hazard)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                                | 1000 ppm (EX - Explosion hazard)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Remark (ACGIH®)                                | TLV® Basis: CNS impair                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Regulatory reference                           | ACGIH 2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| but-1-ene (106-98-9)                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| DNEL: Derived no effect level (Workers)        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Long-term - local effects, inhalation          | 1530 mg/m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                          |                       |
|------------------------------------------|-----------------------|
| Long-term - systemic effects, inhalation | 769 mg/m <sup>3</sup> |
|------------------------------------------|-----------------------|

| propylene (115-07-1)                    |           |
|-----------------------------------------|-----------|
| PNEC: Predicted no effect concentration |           |
| Aqua (freshwater)                       | 1,38 mg/l |
| Aqua (marine water)                     | 1,38 mg/l |

## 8.2. Exposure controls

### 8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.  
 Product to be handled in a closed system.  
 Gas detectors should be used when flammable gases/vapours may be released.  
 Consider the use of a work permit system e.g. for maintenance activities.  
 Systems under pressure should be regularly checked for leakages.  
 Ensure exposure is below occupational exposure limits (where available).

### 8.2.2. Individual protection measures, e.g. personal protective equipment

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:  
 PPE compliant to the recommended EN/ISO standards should be selected.

#### • Eye/face protection

: Wear goggles when transfilling or breaking transfer connections.  
 Standard EN 166 - Personal eye-protection - specifications, or  
 Standard EN ISO 16321-1 Eye and face protection for occupational use Part 1 : General requirements.

#### • Skin protection

##### - Hand protection

: Wear cold insulating gloves when transfilling or breaking transfer connections.  
 Standard EN 511 - Cold insulating gloves, performance level 1 or higher. Recommended types include insulated gauntlets or gloves specifically selected to prevent liquid penetration and ingress of cryogenic liquids and to provide mechanical resistance.  
 Wear working gloves when handling gas containers.  
 Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher. Recommended types include wrist gloves from leather or synthetic material with equivalent performance, fabric gloves, fabric gloves with leather palms.

##### - Other

: Consider the use of flame resistant anti-static safety clothing.  
 Standard EN ISO 14116 - Limited flame spread materials.  
 Standard EN 1149-5 - Protective clothing: Electrostatic properties.  
 Wear safety shoes while handling containers.  
 Standard EN ISO 20345 - Personal protective equipment - Safety footwear.  
 : Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.  
 Consult respiratory device supplier's product information for the selection of the appropriate device.  
 Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

#### • Respiratory protection

When indicated by a risk assessment, Respiratory Protective Equipment must be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD.

#### • Thermal hazards

: None in addition to the above sections.

### 8.2.3. Environmental exposure controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

#### Appearance

- Physical state at 20°C / 101.3kPa

: Gas

- Colour

: Colourless

#### Odour

: Odour threshold is subjective and inadequate to warn of overexposure.

Mixture contains one or more component(s) which have the following odour:

Stenchant often added. Sweetish.

#### Odour threshold

: Odour threshold is subjective and inadequate to warn of overexposure.

#### pH

: Not applicable for gases and gas mixtures.

#### Melting point / Freezing point

: Not applicable for gases and gas mixtures.

#### Boiling point

: Not applicable for gas mixtures.

#### Flash point

: Not applicable for gases and gas mixtures.

#### Flammability

: Extremely flammable gas.

#### Explosive limits

: Lower Explosion Limit is based on ISO10156 calculation.

#### Vapour pressure [20°C]

: Not applicable.

#### Vapour pressure [50°C]

: Not known.

#### Vapour density

: Not applicable for gases and gas mixtures.

#### Relative density, gas (air=1)

: Heavier than air.

#### Water solubility

: No reliable data available.

#### Partition coefficient n-octanol/water (Log Kow)

: Not applicable for gas mixtures.

#### Auto-ignition temperature

: Non flammable.

#### Decomposition temperature

: Not applicable.

#### Viscosity

: Not applicable for gases and gas mixtures.

#### Oxidising properties

: No oxidising properties.

### 9.2. Other information

#### Other data

: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Data for mixtures are not available.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

Can form explosive mixture with air.

May react violently with oxidants.

### 10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

Avoid moisture in installation systems.

### 10.5. Incompatible materials

Air, Oxidisers.

For additional information on compatibility refer to ISO 11114.

### 10.6. Hazardous decomposition products

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

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

|                                       |                                                                                                                              |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Acute toxicity                        | : Toxicological effects not expected by inhalation from this product if occupational exposure limit values are not exceeded. |
| Skin corrosion/irritation             | : No known effects from this product.                                                                                        |
| Serious eye damage/irritation         | : No known effects from this product.                                                                                        |
| Respiratory or skin sensitisation     | : No known effects from this product.                                                                                        |
| Germ cell mutagenicity                | : No known effects from this product.                                                                                        |
| Carcinogenicity                       | : No known effects from this product.                                                                                        |
| Toxic for reproduction : Fertility    | : No known effects from this product.                                                                                        |
| Toxic for reproduction : unborn child | : No known effects from this product.                                                                                        |
| STOT-single exposure                  | : No known effects from this product.                                                                                        |
| STOT-repeated exposure                | : No known effects from this product.                                                                                        |
| Aspiration hazard                     | : Not applicable for gases and gas mixtures.                                                                                 |
| Other information                     | : The substance/mixture has no endocrine disrupting properties.                                                              |

## SECTION 12: Ecological information

### 12.1. Toxicity

|                                 |                                        |
|---------------------------------|----------------------------------------|
| Assessment                      | : Classification criteria are not met. |
| EC50 48h - Daphnia magna [mg/l] | : No data available.                   |
| EC50 72h - Algae [mg/l]         | : No data available.                   |
| LC50 96 h - Fish [mg/l]         | : No data available.                   |

| propane (74-98-6)               |           |
|---------------------------------|-----------|
| EC50 48h - Daphnia magna [mg/l] | 27,1 mg/l |
| EC50 72h - Algae [mg/l]         | 11,9 mg/l |
| LC50 96 h - Fish [mg/l]         | 49,9 mg/l |

| propylene (115-07-1)            |                    |
|---------------------------------|--------------------|
| EC50 48h - Daphnia magna [mg/l] | 28,2 mg/l          |
| EC50 72h - Algae [mg/l]         | No data available. |
| LC50 96 h - Fish [mg/l]         | 51,7 mg/l          |

| butane (106-97-8)               |           |
|---------------------------------|-----------|
| EC50 48h - Daphnia magna [mg/l] | 14,2 mg/l |
| EC50 72h - Algae [mg/l]         | 7,7 mg/l  |
| LC50 96 h - Fish [mg/l]         | 24,1 mg/l |

| but-1-ene (106-98-9)            |          |
|---------------------------------|----------|
| EC50 48h - Daphnia magna [mg/l] | 11 mg/l  |
| EC50 72h - Algae [mg/l]         | 6,5 mg/l |
| LC50 96 h - Fish [mg/l]         | 19 mg/l  |

## isobutane (75-28-5)

|                                 |                     |
|---------------------------------|---------------------|
| EC50 48h - Daphnia magna [mg/l] | 14,22 - 69,43 mg/l  |
| EC50 72h - Algae [mg/l]         | 7,71 - 19,37 mg/l   |
| LC50 96 h - Fish [mg/l]         | 24,11 - 147,54 mg/l |

### 12.2. Persistence and degradability

Assessment : No data available.

### 12.3. Bioaccumulative potential

Assessment : No data available.

### 12.4. Mobility in soil

Assessment : Because of its high volatility, the product is unlikely to cause ground or water pollution.  
Partition into soil is unlikely.

### 12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

### 12.6. Other adverse effects

Other adverse effects : No known effects from this product.  
Effect on the ozone layer : No effect on the ozone layer.  
Effect on global warming : Contains greenhouse gas(es).

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Contact supplier if guidance is required.  
Do not discharge into areas where there is a risk of forming an explosive mixture with air.  
Waste gas should be flared through a suitable burner with flash back arrestor.  
Ensure that the emission levels from local regulations or operating permits are not exceeded.  
Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.eu> for more guidance on suitable disposal methods.  
Do not discharge into any place where its accumulation could be dangerous.  
Return unused product in original container to supplier.  
List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 \*: Gases in pressure containers (including halons) containing hazardous substances.

### 13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

## SECTION 14: Transport information

### 14.1. UN number

In accordance with ADR / RID / IMDG / IATA / ADN  
UN-No. : 1965

## 14.2. UN proper shipping name

|                                                       |                                                                   |
|-------------------------------------------------------|-------------------------------------------------------------------|
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (propane, propylene) |
| Transport by air (ICAO-TI / IATA-DGR)                 | : Hydrocarbon gas mixture, liquefied, n.o.s. (propane, propylene) |
| Transport by sea (IMDG)                               | : HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S. (propane, propylene) |

## 14.3. Transport hazard class(es)

### Labelling



2.1 : Flammable gases.

### Transport by road/rail/inland waterways (ADR/RID/ADN)

|                              |                                                                                                                                                           |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Class                        | : 2                                                                                                                                                       |
| Classification code          | : 2F                                                                                                                                                      |
| Hazard identification number | : 23                                                                                                                                                      |
| Tunnel Restriction           | : B/D - Tank carriage: Passage forbidden through tunnels of category B, C, D and E. Other carriage: Passage forbidden through tunnels of category D and E |

### Transport by air (ICAO-TI / IATA-DGR)

|                             |       |
|-----------------------------|-------|
| Class / Div. (Sub. risk(s)) | : 2.1 |
|-----------------------------|-------|

### Transport by sea (IMDG)

|                                     |       |
|-------------------------------------|-------|
| Class / Div. (Sub. risk(s))         | : 2.1 |
| Emergency Schedule (EmS) - Fire     | : F-D |
| Emergency Schedule (EmS) - Spillage | : S-U |

## 14.4. Packing group

|                                                       |                  |
|-------------------------------------------------------|------------------|
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : Not applicable |
| Transport by air (ICAO-TI / IATA-DGR)                 | : Not applicable |
| Transport by sea (IMDG)                               | : Not applicable |

## 14.5. Environmental hazards

|                                                       |         |
|-------------------------------------------------------|---------|
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : None. |
| Transport by air (ICAO-TI / IATA-DGR)                 | : None. |
| Transport by sea (IMDG)                               | : None. |

## 14.6. Special precautions for user

### Packing Instruction(s)

|                                                       |              |
|-------------------------------------------------------|--------------|
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : P200       |
| Transport by air (ICAO-TI / IATA-DGR)                 |              |
| Passenger and Cargo Aircraft                          | : Forbidden. |
| Cargo Aircraft only                                   | : 200.       |
| Transport by sea (IMDG)                               | : P200       |

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Special transport precautions | : Avoid transport on vehicles where the load space is not separated from the driver's compartment.<br>Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.<br>Before transporting product containers:<br>- Ensure there is adequate ventilation.<br>- Ensure that containers are firmly secured.<br>- Ensure valve is closed and not leaking.<br>- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.<br>- Ensure valve protection device (where provided) is correctly fitted. |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

## SECTION 15: Regulatory information

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

#### EU-Regulations

Seveso Directive : 2012/18/EU (Seveso III) : Covered.

#### National regulations

Water hazard class (WGK) : nwg - Non-hazardous to water  
Storage class (LGK, TRGS 510) : Exclude.  
Regulatory reference : Ensure all national/local regulations are observed.

### 15.2. Chemical safety assessment

A CSA does not need to be carried out for this product.

## SECTION 16: Other information

Indication of changes : Safety data sheet in accordance with commission regulation (EU) No 2020/878.

#### Abbreviations and acronyms

: ATE - Acute Toxicity Estimate  
CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008  
REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006  
EINECS - European Inventory of Existing Commercial Chemical Substances  
CAS# - Chemical Abstract Service number  
PPE - Personal Protection Equipment  
LC50 - Lethal Concentration to 50 % of a test population  
RMM - Risk Management Measures  
PBT - Persistent, Bioaccumulative and Toxic  
vPvB - Very Persistent and Very Bioaccumulative  
STOT- SE : Specific Target Organ Toxicity - Single Exposure  
CSA - Chemical Safety Assessment  
EN - European Standard  
UN - United Nations  
ADR - Agreement concerning the International Carriage of Dangerous Goods by Road  
IATA - International Air Transport Association  
IMDG code - International Maritime Dangerous Goods  
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail  
WGK - Water Hazard Class  
STOT - RE : Specific Target Organ Toxicity - Repeated Exposure  
UFI : Unique Formula Identifier

Training advice : Ensure operators understand the flammability hazard.

Further information : Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Data is maintained in EIGA Doc 169 : 'Classification and Labelling Guide', downloadable at : <http://www.eiga.eu>.  
Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP).

### Full text of H- and EUH-statements

|                   |                                      |
|-------------------|--------------------------------------|
| Flam. Gas 1A      | Flammable gases, Category 1A         |
| Press. Gas (Liq.) | Gases under pressure : Liquefied gas |
| H220              | Extremely flammable gas.             |



# Propan DIN 51622, druckverflüssigt

Reference number: Propan DIN 51622, druckverflüssigt

|      |                                                     |
|------|-----------------------------------------------------|
| H280 | Contains gas under pressure; may explode if heated. |
|------|-----------------------------------------------------|

## DISCLAIMER OF LIABILITY

: Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.  
Details given in this document are believed to be correct at the time of going to press.  
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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