Danger

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

1.1. Product identifier
Trade name : Propadiene 1,2
SDS no : SDS-103-CLP
Chemical description : Propadiene 1,2
CAS No : 463-49-0
EC no : 207-335-3
EC index no : ---
Registration-No. : Registration deadline not expired.
Chemical formula : C3H4

1.2. Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.
Test gas/Calibration gas.
Laboratory use.
Chemical reaction / Synthesis.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet
Company identification : Air Liquide UK Ltd.
Station Road, Coleshill
B46 1JY Birmingham United Kingdom
01675462424
genenq.aluk@airliquide.com

1.4. Emergency telephone number
Emergency telephone number : 01675 462695

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 1
Chemically Unstable gases, Category B
Gases under pressure : Liquefied gas
H220
H231
H280

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
F+; R12

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP): GHS02, GHS04

Signal word (CLP): Danger

Hazard statements (CLP):
- H220 - Extremely flammable gas.
- H280 - Contains gas under pressure; may explode if heated.
- H231 - May react explosively even in the absence of air at elevated pressure and/or temperature.

Precautionary statements (CLP):
- Prevention:
  - P202 - Do not handle until all safety precautions have been read and understood.
  - 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 - Eliminate all ignition sources if safe to do so.
- Storage:
  - P403 - Store in a well-ventilated place.
  - P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards:
- Contact with liquid may cause cold burns/frostbite.

SECTION 3: Composition/information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Directive 67/548/EEC</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propadiene 1,2</td>
<td>(CAS No) 463-49-0 (EC no) 207-335-3 (EC index no) --- (Registration-No.) *2</td>
<td>100</td>
<td>F+, R12</td>
<td>Flam. Gas 1, H220 Chem. Unst. Gas B, H231 Press. Gas (Liq.), H280</td>
</tr>
</tbody>
</table>

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

*1: Listed in Annex IV / V REACH, exempted from registration.
*2: Registration deadline not expired.
*3: Registration not required: Substance manufactured or imported < 1t/y.

Full text of R-phrases see section 16. Full text of H-statements see section 16.

3.2. Mixture
- Not applicable

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. Apply artificial respiration if breathing stopped.
- Skin contact: For liquid spillage - flush with water for at least 15 minutes.
- 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
SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media: Water spray or fog. Dry powder.
- Unsuitable extinguishing media: Do not use water jet to extinguish. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Specific hazards: Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products: Incomplete combustion may form carbon monoxide.

5.3. Advice for fire-fighters

Specific methods: 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. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Move containers away from the fire area if this can be done without risk.


SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Try to stop release.
- Evacuate area.
- Consider the risk of potentially explosive atmospheres.
- Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
- Eliminate ignition sources.
- Ensure adequate air ventilation.
- Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
- Act in accordance with local emergency plan.
- Stay upwind.

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
SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product: The substance 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.
- 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.
- Avoid contact with pure copper, mercury, silver and brass with greater than 65% copper.
- Do not breathe gas.
- Avoid release of product into atmosphere.

Safe handling of the gas receptacle: Refer to supplier’s container handling instructions.
- Do not allow backfeed into the container.
- Protect cylinders 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 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 cylinder 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 cylinder contents.
- Suck back of water into the container must be prevented.

7.2. Conditions for safe storage, including any incompatibilities

: 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 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. 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.

7.3. Specific end use(s)

: None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
OEL (Occupational Exposure Limits) : No data available.
DNEL (Derived-No Effect Level) : No data available.
PNEC (Predicted No-Effect Concentration) : No data available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

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

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 safety glasses with side shields.
  : Wear safety glasses with side shields or goggles when transferring or breaking transfer connections.
  : Standard EN 166 - Personal eye-protection.

- Skin protection
  - Hand protection
    : Wear working gloves when handling gas containers.
    : Standard EN 388 - Protective gloves against mechanical risk.
  - Other
    : Consider the use of flame resistant anti-static safety clothing.
    : Wear safety shoes while handling containers.
    : Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

- Respiratory protection
  : None necessary.

- Thermal hazards
  : None necessary.

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 : Sweetish. Poor warning properties at low concentrations.
Odour threshold : Odour threshold is subjective and inadequate to warn of overexposure.
pH value : Not applicable.
Molar mass : 40 g/mol
Melting point : -136 °C
Boiling point : -34.4 °C
Flash point : Not applicable for gases and gas mixtures.
Critical temperature [°C] : 119.9 °C
Evaporation rate (ether=1) : Not applicable for gases and gas mixtures.

Flammability range : 1.9 - 17 vol %

Vapour pressure [20°C] : 7 bar(a)

Vapour pressure [50°C] : 15 bar(a)

Relative density, gas (air=1) : 1.4

Relative density, liquid (water=1) : 0.65

Solubility in water : Not known, but considered to have low solubility.

Partition coefficient n-octanol/water [log Kow] : 1.45

Auto-ignition temperature : Not known.

Viscosity [20°C] : Not applicable.

Explosive Properties : Not applicable.

Oxidising Properties : None.

SECTION 10: Stability and reactivity

10.1. Reactivity

: No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

: Stable under normal conditions.
    Inhibitor usually added.

10.3. Possibility of hazardous reactions

: May react violently with oxidants.
    Can form explosive mixture with air.

10.4. Conditions to avoid

: May decompose violently at high temperature and/or pressure or in the presence of a catalyst.
    Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

10.5. Incompatible materials

: May react with bases, copper, silver, mercury, magnesium, zinc and their alloys.
    Do not use alloys containing more than 65% copper.
    Air, Oxidiser.
    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 : No known toxicological effects from this product.

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.

SECTION 12: Ecological information

12.1. Toxicity
Assessment : No data available.

12.2. Persistence and degradability
Assessment : No data available.

12.3. Bioaccumulative potential
Assessment : Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

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

12.5. Results of PBT and vPvB assessment
Assessment : No data available.

12.6. Other adverse effects
Effect on ozone layer : None.
Effect on the global warming : No known effects from this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
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. Do not discharge into any place where its accumulation could be dangerous. 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.org for more guidance on suitable disposal methods.

List of hazardous waste codes (from Commission Decision 2001/118/EC) : 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.

13.2. Additional information
 : None.

SECTION 14: Transport information

14.1. UN number
UN-No. : 2200

14.2. UN proper shipping name
Transport by road/rail (ADR/RID) : PROPADIENE, STABILIZED
Transport by air (ICAO-TI / IATA-DGR) : Propadiene, stabilized
14.3. Transport hazard class(es)

Labelling:

2.1 : Flammable gases

Transport by road/rail (ADR/RID)

Class : 2
Classification code : 2F
Hazard identification number : 239
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

14.4. Packing group

Transport by road/rail (ADR/RID) : 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 (ADR/RID) : 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 (ADR/RID) : 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. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 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
Restrictions on use : None.
Seveso directive 96/82/EC : Listed.

National regulations
National legislation : Ensure all national/local regulations are observed.
Water hazard class (WGK) : -

15.2. Chemical safety assessment

: This product is either exempt from REACH, does not meet the minimum volume threshold for a CSR or the CSA has not yet been carried out.

SECTION 16: Other information

Training advice : Ensure operators understand the flammability hazard. The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

Full text of R-, H- and EUH-phrases

Chem. Unst. Gas B Chemically Unstable gases, Category B
Flam. Gas 1 Flammable gases, Category 1
Press. Gas (Liq.) Gases under pressure : Liquefied gas
H220 Extremely flammable gas
H231 May react explosively even in the absence of air at elevated pressure and/or temperature
H280 Contains gas under pressure; may explode if heated
R12 Extremely flammable
F+ Extremely flammable

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