SAFETY DATA SHEET

In accordance with 453/2010 and 1272/2008
(All references to EU regulations and directives are abbreviated into only the numeric term)

Issued 2015-01-16

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier
   
   **Trade name**
   Powergas

   **Supplier's product number**
   2203, 175g, 300ml – 2204, 336g, 600ml

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

1.3. Details of the supplier of the safety data sheet
   
   **Company**
   Sievert AB
   Box 1366
   SE-17126 SOLNA
   Sweden

   **Telephone**
   +46 8-629 22 00

   **E-Mail**
   info@sievert.se

1.4. Emergency telephone number
   
   In case of emergency contact toxicological information, emergency tel 112 (within Europe) or 1-800-222-1222 (for USA). For other countries, use the built-in emergency number in your cell phone
   
   For non-emergency poison information, see http://www.who.int/gho/phe/chemical_safety/poisons_centres/en/

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture
   
   **Classification in accordance with 1272/2008**
   Extremely flammable gas (Category 1)
   Liquefied pressurized gas

   **Classification in accordance with 1999/45/EG**
   Extremely flammable; F+; R12.

2.2. Label elements
   
   **Label information in accordance with 1272/2008**
   Hazard pictograms

   Signal words
   Danger

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

   Precautionary statements
   P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
   P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely
   P381 Eliminate all ignition sources if safe to do so
   P410+P403 Protect from sunlight. Store in a well-ventilated place

   **Label information in accordance with 1999/45/EG**
   See section 16.
2.3. Other hazards
Not relevant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product is composed of a liquefied gas mixture.

3.2. Mixtures
Note that the table shows known hazards of the ingredients in a pure form. These hazards are reduced or eliminated when mixed or diluted, see Section 16d.

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUTANE &lt; 0.1% BUTADIENE</td>
<td>Flam Gas 1, Liq Press gas: H220, H280</td>
<td>50 - 60%</td>
</tr>
<tr>
<td>CAS No</td>
<td>106-97-8</td>
<td></td>
</tr>
<tr>
<td>EC No</td>
<td>203-448-7</td>
<td></td>
</tr>
<tr>
<td>Index No</td>
<td>601-004-00-0</td>
<td></td>
</tr>
<tr>
<td>PROPANE</td>
<td>Flam Gas 1, Press Gas: H220, H280</td>
<td>40 - 50%</td>
</tr>
<tr>
<td>CAS No</td>
<td>74-98-6</td>
<td></td>
</tr>
<tr>
<td>EC No</td>
<td>200-827-9</td>
<td></td>
</tr>
<tr>
<td>Index No</td>
<td>601-003-00-5</td>
<td></td>
</tr>
</tbody>
</table>

Explanations to the classification and labelling of the ingredients are given in Section 16e. Official abbreviations are printed in normal font. Text in italics are specifications and/or complement used in the calculation of the hazards of this mixture, see Section 16b.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures
- Upon breathing in
  Allow the injured person to rest in a warm place with fresh air, if symptoms persist seek medical advice.

- Upon contact with the eyes
  Remove contact lenses immediately if possible.
  Rinse the eye for several minutes with lukewarm water. If irritation persists call a doctor/ophthalmologist.

- Upon skin contact
  Remove contaminated clothes.
  Warm up affected parts of the body if frostbite is apparent.
  In case of major frost injuries, please contact your doctor.

- Upon ingestion
  Call a doctor/physician (Emergency tel 112); Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed
No further relevant information available.

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

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media
- Recommended extinguishing agents
  Extinguish with powder, carbon dioxide or foam.
- Unsuitable extinguishing agents
  Should not be extinguished with water.

5.2. Special hazards arising from the substance or mixture
- Gases detrimental to health (carbon monoxide and carbon dioxide) can be spread in case of fire.
- The gas forms an explosive mixture with air.
- In case of fire, high pressure may build up causing the packaging to explode.
- Flammable gas.

5.3. Advice for fire-fighters
In case of fire use a respirator mask.
SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures
Chemical protection suits should be worn for all salvage and decontamination work. Use recommended safety equipment, see section 8.
Do not inhale the gas.
Note, risk of ignition and explosion.
Upon small spillage < 5 kg Vacate the area and ventilate the fumes.
Switch off equipment which has an exposed flame, glows, or has a heat source of some other kind.
Note, risk for formation of sparks due to static electricity. Do not remove clothing in a room where spillage has occurred.

6.2. Environmental precautions
Avoid discharge into soil, water or air.
Avoid discharge into sewers.

6.3. Methods and material for containment and cleaning up
Evacuate the area and ventilate fumes. Note, risk for explosion.
Residues left behind after cleaning shall be treated as hazardous waste. For further information, contact the local authority sanitisation works. Present this safety data sheet.

6.4. Reference to other sections
Not applicable

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling
Do not inhale fumes and avoid contact with skin and eyes.
The product should be stored in a manner which prevents hazards to health and the environment. Avoid exposure to humans and animals and do not discharge the product in a sensitive environment.
Store tightly, in original packaging.
Store this product separately from food items and keep it out of the reach of children and pets.
Do not eat, drink or smoke in premises where this product is stored.
Open fires, hot objects, spark formation, or other sources of ignition, are not allowed in the premises where this product is handled.
Prevent build up of static electricity by utilising a semi-conducting floor and shoe soles and keep humidity above 50%.

7.2. Conditions for safe storage, including any incompatibilities
Store in a dry place not above normal room temperature.
Handle in a premises which is well ventilated.
Store in a well-ventilated area, not above eye-level.
An evacuation plan should be available and evacuation routes must not be blocked.
Do not store in direct sunlight.
Contact with the liquid product can cause injuries from hypothermia.

7.3. Specific end uses
Not relevant.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

8.1.1. National limit values, United Kingdom
BUTANE < 0.1% BUTADIENE
Time-weighted-average exposure limit (TWA) 600 ppm / 1450 mg/m³ Short term exposure limit (STEL) 750 ppm / 1810 mg/m³
Other ingredients (cf. Section 3) have no occupational exposure limit values.

8.2. Exposure controls
In terms of minimizing risks, attention must be paid to the physical hazards (see Sections 2 and 10) of this product according to EU directives 89/391 and 98/24 and national occupational legislation.
Protective gloves are normally not needed due to the properties of this product, but may be necessary for other reasons, e.g. mechanical risks, temperature conditions or microbiological risks. Very sensitive persons can use gloves labelled “Low Chemical resistant” or “Waterproof” or with the pictogram indicated here.
A respiratory mask may be required.
SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

a) Appearance
   Form: Liquefied gas mixture
   Colour: colourless

b) Odour
   Distinkt och otrevlig om luktsatt, annars luktfri

c) Odour threshold
   Not applicable

d) pH
   Not applicable

e) Melting point-freezing point
   -188 °C

f) Initial boiling point and boiling range
   -42 °C at atmospheric pressure (101325 Pa)

g) Flash point
   -40 °C

h) Evaporation rate
   Not applicable

i) Flammability (solid, gas)
   Extremely flammable gas

j) Upper/lower flammability or explosive limits
   Lower explosion limit 2%
   Upper explosion limit 11%

k) Vapour pressure
   430 kPa (15 °C)

l) Vapour density
   1.50 (15 °C, air = 1.0)

m) Relative density
   0.5 kg/L

n) Solubility
   Not applicable

o) Partition coefficient: n-octanol/water
   Not applicable

p) Auto-ignition temperature
   450 °C

q) Decomposition temperature
   Not applicable

r) Viscosity
   Not applicable

s) Explosive properties
   Not applicable

t) Oxidising properties
   Not applicable

9.2. Other information
   No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity
   The product contains no substances which can lead to hazardous reactions at normal use.

10.2. Chemical stability
   The product is stable at normal storage and handling conditions.

10.3. Possibility of hazardous reactions
   No hazardous reactions known.

10.4. Conditions to avoid
   Avoid heat, sparks and open flames.

10.5. Incompatible materials
   Avoid contact with oxidizers.

10.6. Hazardous decomposition products
   None under normal conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

   General or unspecific toxicity
   This product's main risk is its flammability.

   Acute effects
   Not classified as an acutely toxic substance.

   Harmfulness
   The product is not classified as harmful to health.
Corrosive and irritating effects
Irritation of the mouth, pharynx, and / or respiratory system may occur through inhalation or ingestion.

Effect on judgement and other psychological effects
At high concentrations there is an anaesthetic or narcotic effect.
Prolonged inhalation can cause loss of consciousness and/or death.

Relevant toxicological properties
PROPYANE
LC50 rat (Inhalation) 4h = 658 mg/L inhalation

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
PROPYANE
LC50 Freshwater water flea (Daphnia magna) 48h = 16,3 mg/L
LC50 Fish 96h = 16,1 mg/L
IC50 Algae 72h = 11,3 mg/L.
In the quantities with which this product is used, effects on the environment are negligible. Note however, that the local environment may be affected, and all discharge to the natural environment may impact ecosystems.

12.2. Persistence and degradability
No information about persistence or degratibility exists but there is no reason to suppose that the product is persistent.

12.3. Bioaccumulative potential
No information exists on bioaccumulation, but there is no cause for concern in respect of this.

12.4. Mobility in soil
No information about mobility in the nature exists but there is no reason to suppose the product to be ecologically harmful because of this.

12.5. Results of PBT and vPvB assessment
This product does not contain any substances that are assessed to be a PBT or a vPvB.

12.6. Other adverse effects
None known effects or hazards.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods
Waste handling for the product
Product as well as packaging must be disposed as hazardous waste.
Also take local regulations for dealing with waste into account.
Cf. also national waste regulations.
Special advises for waste handling
16 05 04.
Recycling of the product
This product is not usually recycled.

Transportation of waste
Not indicated

SECTION 14: TRANSPORT INFORMATION
This product is only supposed to be transported by road or railway and just the transport regulations ADR/RID thus apply.

14.1. UN number
2037

14.2. UN proper shipping name
RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES) (BUTANE < 0.1% BUTADIENE, PROPYANE)

14.3. Transport hazard class(es)
Class
2: Gases
Classification code (ADR/RID)
5F:
Subsidiary risk (IMDG)
Labels

14.4. Packing group
Packing group: Not applicable
14.5. Environmental hazards
Not applicable
14.6. Special precautions for user
Tunnel restrictions
Tunnel category: D.
14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable
14.8 Other transport information
Transport category: 2; Highest total quantity per transported unit 333 kg or liters.

SECTION 15: REGULATORY INFORMATION
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Not applicable.
15.2. Chemical safety assessment
Chemical safety report according to 1907/2006 Annex I is not required for this product.

SECTION 16: OTHER INFORMATION
16a. Indication of where changes have been made to the previous version of the safety data sheet
Revisions of this document
This is the first version.
16b. Legend to abbreviations and acronyms used in the safety data sheet
Full texts for Hazard Class and Category Code mentioned in section 3
Flam Gas 1 Extremely flammable gas (Category 1)
Liq Press gas Liquefied pressurized gas
Press Gas P Compressed gas
Comprehensive definition of the hazards mentioned in Section 2
Flam Gas 1
Gases, which at 20 °C and a standard pressure of 101,3 kPa:
(a) are ignitable when in a mixture of 13 % or less by volume in air; or
(b) have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit.
Liq Press gas
Pressurized liquefied gas: A gas which when packaged under pressure, is partially liquid at temperatures above -50 °C without specification of critical temperature
Explanations of the abbreviations in Section 14
ADR European Agreement concerning the International Transport of Dangerous Goods by Road
RID Regulations concerning the International Transport of Dangerous Goods by Rail
Tunnel restriction code: D; Passage forbidden through tunnels of category D and E type.
Transport category: 2; Highest total quantity per transported unit 333 kg or liters.
16c. Key literature references and sources for data
Sources for data
Primary data for the calculation of the hazards has preferentially been taken from the official European classification list, 1272/2008 Annex I, as updated to 2015-01-16.
Where such data was lacking, on the second hand the documentation on which this official classification is based was used, e.g. IUCLID (International Uniform Chemical Information Database). On the third hand, information was used from reputable international chemical suppliers, and on the fourth hand from other available information, e.g. safety data sheets from other suppliers or information from non-profit associations, whereby the reliability of the source was judged by an expert. If, in spite of
this, reliable information was not found, the hazards were judged by expert opinions based on the known properties of similar substances, and according to the principles in 1907/2006 and 1272/2008.

**Full texts for Regulations mentioned in this Safety Data Sheet**


89/391 COUNCIL DIRECTIVE (89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work

98/24 COUNCIL DIRECTIVE 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)


16d. Methods of evaluating information referred to in 1272/2008 Article 9 which was used for the purpose of classification

The calculation of the hazards of this mixture has been performed as an evaluation by applying a weight of evidence determination using expert judgement in accordance with 1272/2008 Annex I, weighing all available information having a bearing on the determination of the hazards of the mixture, and in accordance with 1907/2006 Annex XI.

16e. List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements

**Full text for risk phrases mentioned in section 3**

R12 Extremely flammable

**Full texts for hazard statements mentioned in section 3**

H220 Extremely flammable gas

H280 Contains gas under pressure; may explode if heated

16f. Advice on any training appropriate for workers to ensure protection of human health and the environment

**Warning for misuse**

This product can cause injuries if not used properly. The manufacturer, the distributor or the supplier are not responsible for adverse effects if the product is not handled in accordance with its intended use.

**Other relevant information**

**Label information in accordance with 1999/45/EG**

Hazard symbol

![Hazard symbol](image)

Extremely flammable

**R-phrases**

R12 Extremely flammable

**S-phrases**

S2 Keep out of the reach of children

S9 Keep container in a well-ventilated place

S15 Keep away from heat

S16 Keep away from sources of ignition - No smoking

S33 Take precautionary measures against static discharges

**Editorial information**

This safety data sheet has been generated by the program KemRisk®, KemRisk Sweden AB, Teknikringen 10, SE-583 30 Linköping, Sweden.