

# Safety Data Sheet according to Regulation (EC)

No. 1907/2006 (REACH)

Printed

20.06.2018

Revision

19.06.2018 (GB) Version 9.0

**Isobutane**

2322ff, 0056, 0066, 70232



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

### 1.1. Product identifier

<b>Name of product</b>	Isobutane
	Art-Nr(n): 2322ff, 0056, 0066, 70232
<b>Name of substance</b>	isobutane
<b>Index No</b>	601-004-00-0
<b>EC No</b>	200-857-2
<b>REACH registration number</b>	01-2119485395-27
<b>CAS No</b>	75-28-5

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

#### Identified uses

##### Sector of uses [SU]

- SU10 - Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
- SU12 - Manufacture of plastics products, including compounding and conversion
- SU2a - Mining (without offshore industries)
- SU2b - Offshore industries
- SU21 - Consumer uses: Private households (= general public = consumers)
- SU22 - Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
- SU0-2 - Other activity related to manufacture and services.
- SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites
- SU8 - Manufacture of bulk, large scale chemicals (including petroleum products)

##### Product categories [PC]

- PC13 - Fuels
- PC16 - Heat transfer fluids
- PC19 - Intermediates
- PC21 - Laboratory chemicals
- PC24 - Lubricants, greases, release products
- PC29 - Pharmaceuticals
- PC3 - Air care products
- PC32 - Polymer preparations and compounds
- PC34 - Textile dyes, finishing and impregnating products; including bleaches and other processing aids
- PC35 - Washing and cleaning products (including solvent based products)
- PC39 - Cosmetics, personal care products
- PC0 - Other
- PC8 - Biocidal products (e.g. Disinfectants, pest control)
- PC9a - Coatings and paints, thinners, paint removers
- PC9b - Fillers, putties, plasters, modelling clay

##### Process categories [PROC]

- PROC1 - Use in closed process, no likelihood of exposure
- PROC2 - Use in closed, continuous process with occasional controlled exposure
- PROC3 - Use in closed batch process (synthesis or formulation)
- PROC5 - Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC7 - Industrial spraying
- PROC9 - Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC12 - use of blowing agents in manufacture of foam
- PROC16 - Using material as fuel sources, limited exposure to unburned product to be expected
- PROC8a - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC11 - Non industrial spraying
- PROC8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

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#### Environmental release categories [ERC]

ERC1 - Manufacture of substances

ERC7 - Industrial use of substances in closed systems

ERC8a - Wide dispersive indoor use of processing aids in open systems

ERC8d - Wide dispersive outdoor use of processing aids in open systems

ERC2 - Formulation of preparations (mixtures)

ERC3 - Formulation in materials

ERC4 - Industrial use of processing aids in processes and products, not becoming part of articles

ERC5 - Industrial use resulting in inclusion into or onto a matrix

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

#### Remark

Restricted to professional users.

#### Recommended intended purpose(s)

Basic substance.

Propellant.

Laboratory reagent.

Refrigerant (R-600a)

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

##### Manufacturer/distributor

GHC Gerling, Holz & Co. Handels GmbH  
Ruhrstraße 113, D-22761 Hamburg  
Phone +49 40 853 123-0, Fax +49 40 853 123-66  
E-Mail [hamburg@ghc.de](mailto:hamburg@ghc.de)  
Internet [www.ghc.com](http://www.ghc.com)

##### Advice

GHC Gerling, Holz & Co. Handels GmbH  
Phone +49 40 853 123-0  
Fax +49 40 853 123-66  
E-mail (competent person):  
[msds@ghc.de](mailto:msds@ghc.de)

#### 1.4. Emergency telephone number

##### Emergency advice

Giftinformationszentrum (Poison Control Centre) Mainz  
Phone +49 6131 19240

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

Hazard classes and Hazard categories	Hazard Statements	Classification procedure
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Flam. Gas 1	H220
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Liquef. Gas	H280
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#### Hazard statements for physical hazards

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

#### Additional hints

Listed substance (Regulation (EC) No 1272/2008, Annex VI, part 3).

### 2.2. Label elements

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**Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]**



**GHS02**

**Signal word**

**Danger**

**Hazard statements for physical hazards**

**H220** Extremely flammable gas.

**H280** Contains gas under pressure; may explode if heated.

**Precautionary Statements**

**Prevention**

**P210** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Response**

**P377** Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

**P381** In case of leakage, eliminate all ignition sources.

**Storage**

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

**2.3. Other hazards**

**Adverse human health effects and symptoms**

Contact with liquid may cause cold burns/frostbite.

Asphyxiant in high concentrations.

**Information pertaining to special dangers for human and environment**

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

Receptacle under pressure.

**Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**! SECTION 3: Composition/ information on ingredients**

**3.1. Substances**

**Description**

Content: > 95 %

**CAS No 75-28-5**

**isobutane**

EC No 200-857-2

Index No 601-004-00-0

REACH registration number 01-2119485395-27

**3.2. Mixtures**

not applicable

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**! SECTION 4: First aid measures**

**4.1. Description of first aid measures**

**! General information**

Remove contaminated soaked clothing immediately.  
Adhere to personal protective measures when giving first aid.  
Seek medical treatment immediately.

**In case of inhalation**

Remove the casualty into fresh air and keep him immobile.  
Seek medical treatment immediately.  
In case of respiratory standstill give artificial respiration by respiratory bag (Ambu bag) or respirator. Send for a doctor.

**! In case of skin contact**

In case of contact with skin wash off with warm water.  
In case of frostbite rinse with plenty of water. Don't remove clothing.  
In case of frostbite spray with lukewarm (not hot) water for at least 15 minutes. Do not remove clothing frozen to the skin. Thaw it with lukewarm water. Apply a sterile dressing. Obtain medical assistance.

**In case of eye contact**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Call for a doctor immediately.

**In case of ingestion**

Ingestion is not considered a potential route of exposure.

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

**Physician's information / possible symptoms**

The following symptoms may occur in case of strong exposition:

Unconsciousness  
Cardiac arrhythmia (disordered cardiac rhythm).  
Shortness of breath  
Anaesthetic state  
Headache  
Nausea  
Contact with liquid may cause cold burns/frostbite.

**Physician's information / possible dangers**

Risk of respiratory disorders  
In case of strong exposition risk of cardiac rhythm disturbances.

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

**Treatment (Advice to doctor)**

Treat symptoms.  
Monitor circulation.

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**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

**Suitable extinguishing media**

Dry powder  
Carbon dioxide

**Unsuitable extinguishing media**

Full water jet

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

In case of fire formation of dangerous gases possible.

Formation of explosive gas mixtures in air.

In the event of fire the following can be released:

Carbon monoxide (CO)

Carbon dioxide (CO<sub>2</sub>)

**5.3. Advice for firefighters**

**Special protective equipment for fire-fighters**

Use breathing apparatus with independent air supply ( isolated ).

Wear full protective clothing.

**Additional information**

Cool endangered containers with water spray jet.

Exposure to fire may cause containers to rupture / explode.

Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur.

Extinguish any other fire.

Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

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**! SECTION 6: Accidental release measures**

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

**! For non-emergency personnel**

Evacuate area.

Keep people away and stay on the upwind side.

Keep away sources of ignition.

**! For emergency responders**

Remove persons to safety.

Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

Personal protection by wearing close-fitting protective clothing and breathing apparatus.

Eliminate all ignition sources if safe to do so.

**6.2. Environmental precautions**

If possible, stop flow of product.

Do not discharge into the drains/surface waters/groundwater.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

If necessary, secure leaky pressure receptacles in a salvage packaging.

Do not discharge into the subsoil/soil.

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

Ensure adequate air ventilation.

Allow to vaporise.

**6.4. Reference to other sections**

Safe handling: see section 7

Disposal: see section 13

Personal protection equipment: see section 8

## **! SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

#### **Advice on safe handling**

Use only in thoroughly ventilated areas.

Transfer and handle only in enclosed systems.

Containers' temperature may not be increased above 50 °C.

Do not heat with open flames.

The working pressure in the receptacle must not exceed the saturation vapour pressure of the pure product resulting at a temperature of 50 °C.

Take measures against electrostatically charging.

Barrels and installations thoroughly earthing (grounding ).

Use antistatic tools.

Treatment only in suitable rooms and systems.

Provide good room ventilation even at ground level (vapours are heavier than air).

Prevent cylinders from falling over.

Ensure valve protection device is correctly fitted.

Ensure valve outlet cap nut or plug (where provided) is correctly fitted.

Open valve slowly to avoid pressure shock.

Do not allow backfeed into the container.

Suck back of water into the container must be prevented.

No water to valves, flanges and other fittings.

Purging of pipes and valves with inert gases - to avoid: water, solvents.

#### **General protective measures**

Do not inhale gases.

#### **Hygiene measures**

At work do not eat, drink and smoke.

Wash hands before breaks and after work.

#### **Advice on protection against fire and explosion**

The product is combustible.

Because of risk of explosion avoid vapours getting into cellar, sewage system and holes.

Take precautionary measures against static discharges.

Formation of explosive gas mixtures in air.

Pay attention to general rules of internal fire prevention.

Use explosion-proof equipment / fittings and non-sparking tools.

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

#### **Requirements for storage rooms and vessels**

Keep in closed original container.

Ventilate store-rooms thoroughly.

Only use containers that are approved specifically for the substance/product.

Suitable materials: Normalised carbon steel, tempered alloy steel, aluminium alloys, austenitic stainless steels.

Valve: Suitable materials: Brass, copper alloys, carbon steels, aluminium alloys, austenitic stainless steels.

Other material details see ISO 11114.

All regulations and local requirements for the storage of containers have to be respected.

#### **! Advice on storage compatibility**

Do not store together with spontaneously flammable materials.

Do not store together with combustible liquids or combustible solids.

Do not store together with animal feedstuffs.

Do not store together with explosives.

Do not store together with infectious substances.

Do not store together with radioactive material.

Do not store together with toxic liquids or toxic solids.

Do not store together with food.

Do not store together with oxidizing liquids or oxidizing solids.

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### Further information on storage conditions

Ensure valve protection device is correctly fitted.

Store only in original container at temperature of 50°C maximum (=122°F).

Keep container tightly closed and store at cool and aired place.

Prevent cylinders from falling over.

Protect of heat.

### 7.3. Specific end use(s)

#### ! Recommendation(s) for intended use

See section 1.2

Exposure scenarios (ES) see annex to this safety data sheet.

## ! SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### ! Ingredients with occupational exposure limits to be monitored

CAS No	Name	Code	[mg/m3]	[ppm]	Remark
75-28-5	Isobutane	REL, 8 hours	1900	800	NIOSH, USA

### 8.2. Exposure controls

#### ! Respiratory protection

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Keep self contained breathing apparatus readily available for emergency use.

Do not use any filter apparatus.

In case of rescue and maintenance activities in storage containers use environment-independent breathing apparatus because of risk of suffocation by edging out of air oxygen

#### ! Hand protection

Leather gloves

Protective gloves complying with EN 374.

Safety gloves according EN 388

#### ! Eye protection

Protective goggles according to EN 166, in case of increased risk add protective face shield.

#### ! Other protection measures

Safety shoes with steel toe.

Body covering work clothing, or chemical resistant suit at increased risk complying with EN 14605.

### Appropriate engineering controls

Transfer and handle only in enclosed systems.

## SECTION 9: Physical and chemical properties

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

#### Appearance

Gaseous / liquefied under pressure.

#### Colour

colourless

#### Odour

sweetish

#### Odour threshold

not determined

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**Important health, safety and environmental information**

	Value	Temperature	at	Method	Remark
<b>pH value</b>	not applicable				
<b>Acid number</b>	not applicable				
<b>boiling point</b>	-11,7 °C		1013 hPa		
<b>melting point</b>	-159,6 °C				
<b>Flash point</b>	-83 °C				
<b>Vapourisation rate</b>	not applicable				
<b>Flammable (solid)</b>	not applicable				
<b>Flammability (gas)</b>	inflammable				
<b>Ignition temperature</b>	460 °C				
<b>Self ignition temperature</b>	460 °C				
<b>Lower explosion limit</b>	1,5 Vol-%				
<b>Upper explosion limit</b>	9,4 Vol-%				
<b>Vapour pressure</b>	3020 hPa	20 °C			
<b>Relative density</b>	2,7 kg/m <sup>3</sup>	0 °C	1013 hPa		
<b>Vapour density</b>	2,07				Air = 1.
<b>Solubility in water</b>	49 mg/l	20 °C			
<b>Solubility/other</b>					soluble in organic solvent
<b>Partition coefficient n-octanol/water (log P O/W)</b>	2,76				
<b>Decomposition temperature</b>	not applicable				
<b>Viscosity dynamic</b>	not applicable				
<b>Oxidising properties</b>	no				



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**Explosive properties**

Due to its chemical structure, the product is not classified as explosive.

**9.2. Other information**

Vapours are heavier than air.

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**! SECTION 10: Stability and reactivity**

**10.1. Reactivity**

See section "Possibility of hazardous reactions".

**10.2. Chemical stability**

Stable under recommended conditions of use and storage (see section 7).

**10.3. Possibility of hazardous reactions**

Formation of explosive gas/air mixtures.

Violent reactions with air and oxidising agents.

**10.4. Conditions to avoid**

Formation of explosive gas/air mixtures.

Heat sources / heat - risk of bursting.

Avoid contact with open flames, glowing metal surfaces, etc..

**10.5. Incompatible materials**

**! Substances to avoid**

Acetylene

Air, oxidiser.

Nitrogen oxides (NOx)

**10.6. Hazardous decomposition products**

When handled and stored appropriately, no dangerous decomposition products are known.

**Thermal decomposition**

Remark No decomposition if used as directed.

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**! SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

**Acute toxicity/Irritation/Sensitization**

	Value/Validation	Species	Method	Remark
<b>LD50 acute oral</b>	Study technically not feasible.			
<b>LD50 acute dermal</b>	Study technically not feasible.			
<b>LC50 acute inhalation</b>	520400 ppm (120 min)	mouse		
<b>Skin irritation</b>	Study technically not feasible.			

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	Value/Validation	Species	Method	Remark
<b>Eye irritation</b>	Study technically not feasible.			
<b>Skin sensitization</b>	Study technically not feasible.			
<b>Sensitization respiratory system</b>	not determined			

**Subacute Toxicity - Carcinogenicity**

	Value	Species	Method	Validation
<b>Subacute Toxicity</b>	NOAE.C 4000 ppm (28 d) Sub-acute inhalation toxicity 6 h/d, 7 d/w.	rat (male / female)	OECD 422.	No effects of toxicological significance.
<b>Subchronic Toxicity</b>	NOAEC 9000 ppm (42 d) Inhalation 6 h/d, 5 d/w	Rat (male / female)	OECD TG 422	No effects of toxicological significance.
<b>Mutagenicity</b>	0,5 - 8 % (24 - 44 h)  Gene mutation	human lymphocytes	OECD 473	No experimental information on genotoxicity in vitro available.
<b>Reproduction-Toxicity</b>	NOAEC 3000 ppm  Inhalation. 6 h/d, 7 d/w	Rat (male / female)	OECD TG 422	No indications of toxic effects were observed in reproduction studies in animals.

**Carcinogenicity**

Study scientifically not justified.

**Specific target organ toxicity (single exposure)**

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with single exposure.

**Specific target organ toxicity (repeated exposure)**

Substance or mixture is not classified in GHS-criteria as specific target organ toxic with repeated exposure.

**! Aspiration hazard**

Not applicable for gases and gas mixtures

**Toxicity test (Additional information)**

No experimental indication of genotoxicity in vitro ( Ames-test negative ).

No indication of cancerogenic effects at humans available.

**Experiences made from practice**

May cause frostbite.

Gases have a suffocating effect.

Inhalation causes narcotic effect/intoxication.

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**! SECTION 12: Ecological information****12.1. Toxicity****Ecotoxicological effects**

	Value	Species	Method	Validation
<b>Fish</b>	LC50 27,98 - 147,54 mg/l (96 h)	Fish	QSAR	
<b>Daphnia</b>	LC50 16,33 mg/l (48 h)	Daphnia	QSAR	
<b>Algae</b>	EC50 8,57 mg/l (96 h)	Algae	QSAR	

**12.2. Persistence and degradability**

	Elimination rate	Method of analysis	Method	Validation
<b>Physico-chemical degradability</b>	At normal temperature very highly volatile or gaseous product that can be released to atmosphere. Elimination test cannot be employed.			
<b>Biological degradability</b>	100 % (385,5 h)		OECD	readily degradable

**12.3. Bioaccumulative potential**

Bioaccumulation improbable.

Because of the n-octanol/water distribution coefficient (log K o/w) accumulation in organisms is not expected.

**12.4. Mobility in soil**

Adsorption in the soil is not likely.

Because of its high volatility, it is unlikely that the product soil, water caused.

**12.5. Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

**12.6. Other adverse effects**

GWP: 3

**General regulation**

Avoid release to the environment.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Waste code No.**

16 05 04\*

**Name of waste**

gases in pressure containers (including halons) containing hazardous substances

Wastes marked with an asterisk are considered to be hazardous waste pursuant to Directive 2008/98/EC on hazardous waste.

**Recommendations for the product**

Dispose of as hazardous waste.

**Recommendations for packaging**

Transportable pressure equipment (empty, residual pressure): Return to supplier / manufacturer.

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**! SECTION 14: Transport information**

	ADR/RID	IMDG	IATA-DGR
<b>14.1. UN number</b>	1969	1969	1969
<b>14.2. UN proper shipping name</b>	ISOBUTANE	ISOBUTANE	Isobutane
<b>14.3. Transport hazard class(es)</b>	2.1	2.1	2.1
<b>14.4. Packing group</b>	-	-	-
<b>14.5. Environmental hazards</b>	No	No	No

**14.6. Special precautions for user**

The protective measures listed in Sections 6, 7 and 8 of the Safety Data Sheet have to be considered.

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

not applicable

No transport as bulk according IBC - Code.

**Land and inland navigation transport ADR/RID**

Hazard label(s) 2.1

tunnel restriction code B/D

Classification code 2F

**Marine transport IMDG**

Ems: F-D, S-U

**! SECTION 15: Regulatory information**

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

**Other regulations (EU)**

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex XVII No 40.

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances.

**VOC standard**

**VOC content** 100 % 20 °C 3020 hPa

**15.2. Chemical Safety Assessment**

For this substance a chemical safety assessment has been carried out.

Exposure scenarios (ES) see annex to this safety data sheet.

**SECTION 16: Other information**

**Recommended uses and restrictions**

National and local regulations concerning chemicals shall be observed.

**Further information**

All declarations of safety-data-sheet refer to pure substance.

The information contained herein is based on the state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product.

Indication of changes: "!" = Data changed compared with the previous version. Previous version: 8.1

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**Sources of key data used**

For the preparation of this safety data sheet, information from our suppliers as well as data from the "database of registered substances" of the European Chemicals Agency (ECHA) were used.

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**Annex: Exposure scenarios**



**List of identified uses for the substance isobutane**

List of descriptor used for gases	IUCLID 5		ECHA uses descriptors				
List of uses for gas	Main use categories	Specifications for industrial and professional uses	Proc	PC	SU	NACE	ERC
Formulation of mixtures with gas in pressure receptacles	Industrial	Close system	1,3	n.a.	10	-	ERC2
Using gas alone or in mixtures for calibration of analysis equipment	Industrial	Close system	1,3	21	0 - 2a, 2b	M74.9	ERC8D
Transfiling gas or liquid	Industrial	Close system	9	n.a.	10	-	ERC2
Using gas as a fuel	Consumers	Non-dispersive use	16	13	3, 21, 22	-	open
Use gas as feedstock in chemical process	Industrial	Close system	1	19	3,8		ERC6A, ERC1
Use of gas as to refill refrigeration equipment Refrigerant gas	Professional	Close system	8	16	3, 22	-	ERC7
Aerosol Propellant use	Industrial	Wide dispersive use	2,5,7,9b 11	0,3,8,9a, 9b, 24,34,35, 29,39	3,10,21,22		ERC2-8A
Use gas in mixtures as foaming agents in personal care products	Industrial	Close system	12	39	21		open
Using of blowing agents in manufacture of plastic foam	Industrial	Close system	12	32	12	22.2	ERC3
Use as intermediate (transport, on-site isolated)	Industrial	Close system	1	19	3		ERC6A

**Legend**

IUCLID International Uniform Chemical Information Database

PC Preparation Category

SU Sector of use category

NACE Nomenclature General of Economic Activities within European Communities

ERC Environmental release category

ECHA European Chemicals Agency

N.A. Not Applicable

PROC 1 Use in closed process, no likelihood of exposure

PROC 2 Use in close, continuous process with occasional controlled exposure (e.g. sampling)

PROC 3 Use in batch and other process (synthesis or formulation)

PROC 5 Mixing or blending in batch processes for formulation of preparations and articles (multistage)

PROC 7 Industrial spraying

PROC 8 Transfer of a substance or preparation (charging/discharging) from / to vessels / large containers at non- dedicated facilities

PROC 9 Transfer of a substance or preparation into small containers (dedicated filling line, including weighing)

PROC 11 Non-industrial spraying

PROC 12 Use of blowing agents in manufacture of foam

PROC 16 Using materials as fuel sources, limited exposure to unburned product to be expected. Industrial or not industrial setting

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#### Annex: Exposure scenarios



#### Legend (continue)

- PC 0 Other products
- PC 3 Air care products
- PC 8 Biocidal products (eg, disinfectants, pest control)
- PC 9a Coatings and paints, thinners, paint removers
- PC 9b Fillers, Putties
- PC 13 Fuels
- PC 16 Heat transfer fluids
- PC 19 Intermediate
- PC 21 Laboratory Chemicals
- PC 24 Lubricants, Greases and Release Products
- PC 29 Pharmaceuticals
- PC 32 Polymer Preparations and Compounds
- PC 34 Textile dyes, finishing and impregnating products, including bleaches and other processing aids
- PC 35 Washing and Cleaning (including solvent based products)
- PC 39 Cosmetic, personal care products
  
- SU 0 Others
- SU 2nd Mining (without offshore industries)
- SU 2b Offshore industries
- SU 3 Industrial use: end uses of substances as such or preparations at industrial sites
- SU 8 Manufacture of bulk ,large scale chemicals (including petroleum products)
- SU 10 Formulation: Formulation (mixing) of preparations and/or re-packaging
- SU 12 Manufacture of plastics products, including compounding and conversion
- SU 21 Consumer uses: private households (=general public=consumer)
- SU 22 Professional Uses: Public domain (administration, education, entertainment, services, craftsmen)
  
- ERC 1 Manufacture of substances
- ERC 2 Formulation of preparations
- ERC 3 Formulation in materials
- ERC 6a Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC 7 Industrial use of substances in closed systems
- ERC 8a Wide dispersive indoor use of processing aids in open systems