

**1 Identification of the substance/mixture and of the company/undertaking**

**Product identifier**  
Trade name **1,2-Dichlorooctafluorocyclohexene**  
Stock number: B22633  
Relevant identified uses of the substance or mixture and uses advised against  
Sector of Use SU24 Scientific research and development

**Details of the supplier of the safety data sheet**  
Manufacturer/Supplier: Alfa Aesar GmbH & Co.KG  
A Johnson Matthey Company  
Benzstrasse 3  
D-76185 Karlsruhe / Germany  
Tel: +49 (0) 721 84007 280  
Fax: +49 (0) 721 84007 300  
Email: tech@alfa.com  
www.alfa.com

**Informing department:** Product safety department.  
**Emergency telephone number:** Product Safety Department +049 (0) 7275 988687-0 (business hours)  
Carechem 24: +44 (0) 1235 239 670 (Multi-language 24 hour emergency)  
Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240

**2 Hazards identification**

**Classification of the substance or mixture**  
Classification according to Regulation (EC) No 1272/2008



GHS06 skull and crossbones

Acute Tox. 2 H330 Fatal if inhaled.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R23: Toxic by inhalation.

**Label elements**  
Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms

The substance is classified and labelled according to the CLP regulation.



GHS06

Signal word

Danger

Hazard statements

H330 Fatal if inhaled.

Precautionary statements

P280 Wear protective clothing.  
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P309 IF exposed or if you feel unwell:  
P310 Immediately call a POISON CENTER or doctor/physician.

Other hazards

Results of PBT and vPvB assessment

PBT:

Not applicable.

vPvB:

Not applicable.

**3 Composition/information on ingredients**

Chemical characterization: Substances

(CAS#) Designation:

1,2-Dichlorooctafluorocyclohexene (CAS# 336-19-6)

**4 First aid measures**

Description of first aid measures

General information

Instantly remove any clothing soiled by the product.  
Remove breathing apparatus only after soiled clothing has been completely removed.  
In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.  
Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.  
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek immediate medical advice.

**5 Firefighting measures**

Extinguishing media

Suitable extinguishing agents

Special hazards arising from the substance or mixture

CO<sub>2</sub>, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

Advice for firefighters

Protective equipment:

Can be released in case of fire:  
Carbon monoxide and carbon dioxide  
Hydrogen chloride (HCl)  
Hydrogen fluoride (HF)

Wear self-contained breathing apparatus.  
Wear full protective suit.**6 Accidental release measures**

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation

Environmental precautions:

Methods and material for containment and cleaning up:

Do not allow material to be released to the environment without proper governmental permits.

Reference to other sections

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

Trade name **1,2-Dichlorooctafluorocyclohexene**

(Contd. of page 1)

**7 Handling and storage**

<b>Handling</b>	
<b>Precautions for safe handling</b>	Keep containers tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation/exhaustion at the workplace. Open and handle container with care.
<b>Information about protection against explosions and fires:</b>	Keep ignition sources away - Do not smoke.
<b>Conditions for safe storage, including any incompatibilities</b>	
<b>Storage</b>	
<b>Requirements to be met by storerooms and containers:</b>	No special requirements.
<b>Information about storage in one common storage facility:</b>	Store away from oxidizing agents.
<b>Further information about storage conditions:</b>	Keep container tightly sealed. Store in cool, dry conditions in well sealed containers. Store in a locked cabinet or with access restricted to technical experts or their assistants.

**8 Exposure controls/personal protection**

<b>Additional information about design of technical systems:</b>	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
<b>Control parameters</b>	
<b>Components with critical values that require monitoring at the workplace:</b>	Not required.
<b>Additional information:</b>	No data
<b>Exposure controls</b>	
<b>Personal protective equipment</b>	
<b>General protective and hygienic measures</b>	The usual precautionary measures should be adhered to in handling the chemicals. Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments. Wash hands during breaks and at the end of the work. Store protective clothing separately. Use breathing protection with high concentrations. Check protective gloves prior to each use for their proper condition. The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. Impervious gloves
<b>Breathing equipment:</b>	Not determined
<b>Protection of hands:</b>	Safety glasses
<b>Material of gloves</b>	Protective work clothing.
<b>Penetration time of glove material</b>	
<b>Eye protection:</b>	
<b>Body protection:</b>	

**9 Physical and chemical properties**

<b>Information on basic physical and chemical properties</b>	
<b>General Information</b>	
<b>Appearance:</b>	
<b>Form:</b>	Liquid
<b>Colour:</b>	Colourless
<b>Smell:</b>	Not determined
<b>Odour threshold:</b>	Not determined.
<b>pH-value:</b>	Not determined.
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	112-114°C
<b>Sublimation temperature / start:</b>	Not determined
<b>Inflammability (solid, gaseous)</b>	Not applicable.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Self-inflammability:</b>	Not determined.
<b>Danger of explosion:</b>	Product is not explosive.
<b>Critical values for explosion:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Steam pressure:</b>	Not determined
<b>Density at 20°C</b>	1.719 g/cm <sup>3</sup>
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Evaporation rate</b>	Not determined.
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Not miscible or difficult to mix
<b>Segregation coefficient (n-octanol/water):</b>	Not determined.
<b>Viscosity:</b>	
<b>dynamic:</b>	Not determined.
<b>kinematic:</b>	Not determined.
<b>Other information</b>	No further relevant information available.

**10 Stability and reactivity**

<b>Reactivity</b>	
<b>Chemical stability</b>	
<b>Thermal decomposition / conditions to be avoided:</b>	No decomposition if used and stored according to specifications.
<b>Possibility of hazardous reactions</b>	No dangerous reactions known
<b>Incompatible materials:</b>	Oxidizing agents Alkali metals Alkaline earth metals

(Contd. on page 3)  
GB

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Revision: 24.05.2011

Printing date 26.05.2011

Trade name **1,2-Dichlorooctafluorocyclohexene**

**Hazardous decomposition products:** Carbon monoxide and carbon dioxide  
Hydrogen chloride (HCl)  
Hydrogen fluoride

(Contd. of page 2)

**11 Toxicological information****Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**Inhalative LC50/4H 910 mg/m<sup>3</sup>/4H (rat) (RTECS)**Primary irritant effect:****on the skin:****on the eye:****Sensitization:****Additional toxicological information:**

May cause irritation

May cause irritation

No sensitizing effect known.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

**12 Ecological information**

**Toxicity**  
**Acquatic toxicity:** No further relevant information available.  
**Persistence and degradability**  
**Behaviour in environmental systems:** No further relevant information available.  
**Bioaccumulative potential**  
**Mobility in soil**  
**Additional ecological information:** No further relevant information available.  
**General notes:** Do not allow material to be released to the environment without proper governmental permits.  
**Results of PBT and vPvB assessment**  
**PBT:** Not applicable.  
**vPvB:** Not applicable.  
**Other adverse effects** No further relevant information available.

**13 Disposal considerations**

**Waste treatment methods**  
**Recommendation** Hand over to disposers of hazardous waste.  
Must be specially treated under adherence to official regulations.  
Consult state, local or national regulations for proper disposal.

**Uncleaned packagings:**  
**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information****Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

**ADR/RID-GGVS/E Class:** 6.1 (T1) Toxic substances.  
**Kemler Number:** 60  
**UN-Number:** 2810  
**Packaging group:** II  
**Label** 6.1  
**UN proper shipping name:** 2810 TOXIC LIQUID, ORGANIC, N.O.S. (1,2-Dichlorooctafluorocyclohexene)  
**Limited quantities (LQ)** LQ17  
**Transport category** 2  
**Tunnel restriction code** D/E

**Maritime transport IMDG/GGVSea:**

**IMDG/GGVSea Class:** 6.1  
**UN Number:** 2810  
**Label** 6.1  
**Packaging group:** II  
**EMS Number:** F-A,S-A  
**Marine pollutant:** No  
**Correct technical name:** TOXIC LIQUID, ORGANIC, N.O.S. (1,2-Dichlorooctafluorocyclohexene)

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 6.1  
**UN/ID Number:** 2810  
**Label** 6.1  
**Packaging group:** II  
**Correct technical name:** TOXIC LIQUID, ORGANIC, N.O.S. (1,2-Dichlorooctafluorocyclohexene)

**UN "Model Regulation":**UN2810, TOXIC LIQUID, ORGANIC, N.O.S., 6.1, II  
Warning: Toxic substances.

**Special precautions for user**  
**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**

Not applicable.

**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****Labelling according to Regulation (EC) No**

1272/2008

**Hazard pictograms**

The substance is classified and labelled according to the CLP regulation.



GHS06

**Signal word**

Danger

(Contd. on page 4)  
GB

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(Contd. of page 3)

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<b>Precautionary statements</b>	P280 Wear protective clothing. P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P309 IF exposed or if you feel unwell: P310 Immediately call a POISON CENTER or doctor/physician.
<b>National regulations</b>	
<b>Information about limitation of use:</b>	For use only by technically qualified individuals. Employment restrictions concerning young persons must be observed.
<b>Chemical safety assessment:</b>	A Chemical Safety Assessment has not been carried out.

**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing data specification sheet:** Health, Safety and Environmental Department.

**Contact:** Zachariah C. Holt  
Global EHS Manager

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)  
ICAO: International Civil Aviation Organization  
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)  
GHS: Globally Harmonized System of Classification and Labelling of Chemicals  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

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