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Version number 1

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**\* SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name: OCTAFLUORO-1,4-DIIODOBUTANE****Article number: DIDN2 STD****EC number:**

206-788-4

**1.2 Relevant identified uses of the substance or mixture and uses advised against:****Sector of Use SU8** Manufacture of bulk, large scale chemicals (including petroleum products)**1.3 Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

DAIKIN INDUSTRIES, LTD. CHEMICALS DIVISION:

OSAKA UMEDA TWIN TOWERS SOUTH, 1-13-1 Umeda, Kita-ku, Osaka-shi, Osaka, 530-0001, Japan

Phone: +81-6-6147-9702 Fax: +81-6-6147-9807

**Further information obtainable from:**<http://www.daikin.com/>[sales@daikinchem.de](mailto:sales@daikinchem.de)**1.4 Emergency telephone number:**

Japan: +81-6-6349-7521

China: +86-532-8388-9090, +86-21-34151689

South Korea: +82-2-568-1722

Americas: CHEMTREC +1-800-424-9300 (Outside US/Canada: +1-703-527-3887)

Europe: +49-211-179 225-0

**\* SECTION 2: Hazard identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT SE 3 H336 May cause drowsiness or dizziness.

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

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

**Signal word:** Warning**Hazard-determining components of labelling:**

1,1,2,2,3,3,4,4-Octafluoro-1,4-diodobutane

**Precautionary statements:**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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**\* SECTION 3: Composition/information on ingredients****Information on ingredients:**

CAS: 375-50-8 1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane >99.7%  
STOT RE 1, H372  
Eye Dam. 1, H318  
Acute Tox. 4, H332; Skin Sens. 1, H317

**Identification number(s)**

EC number: 206-788-4

**\* SECTION 4: First aid measures****4.1 Description of first aid measures****General information:** Seek medical treatment.**After inhalation:**

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

Supply fresh air; consult doctor in case of complaints.

**After skin contact:**

Remove contaminated clothes immediately.

Immediately wash with water and soap and rinse thoroughly.

Consult a doctor in case of complaints.

**After eye contact:**

Immediately rinse with a lot of water for several minutes. Remove contact lenses if possible. Continue rinsing.

Consult an ophthalmologist in case of complaints.

**After swallowing:**

Rinse mouth with water. Do not induce vomiting.

Consult a doctor in case of complaints.

**4.2 Most important symptoms and effects, both acute and chronic:** Allergic reactions**4.3 Indication of any immediate medical attention and special treatment needed:**

No further relevant information available.

**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing agents:** Use fire extinguishing methods suitable for surrounding conditions.**5.2 Special hazards arising from the substance or mixture:**

Formation of toxic gases is possible during heating or in case of fire.

**5.3 Advice for firefighters:****Protective equipment:**

Wear fully protective suit.

Wear self-contained breathing apparatus and protective suit.

Do not inhale explosion gases or combustion gases.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures:**

Ensure adequate ventilation before entering the area.

Stay on the windward side.

Keep out unauthorized persons.

Wear appropriate protective devices (See Section 8 Exposure Controls/Personal Protection).

Avoid contact with eyes and skin.

Do not swallow the product.

**6.2 Environmental precautions:** Prevent seepage into sewage system, workpits and cellars.**6.3 Methods and material for containment and cleaning up:**

For a small amount of leakage: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders) or collect in an empty container that can be sealed tightly.

For a large amount of leakage: Enclose with banks to avoid outflow. Lead the leakage to a safe place and collect.

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See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**\* SECTION 7: Handling and storage****7.1 Precautions for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Do not handle until all safety precautions have been read and understood.

**Information about fire - and explosion protection:** Keep ignition sources away - Do not smoke.**7.2 Conditions for safe storage, including any incompatibilities:****Storage****Requirements to be met by storerooms and receptacles:**

Store in a cool and dry location.

Prevent any seepage into the ground.

Keep containers tightly sealed.

**Information about storage in one common storage facility:**

See section 10 for information on incompatible materials.

**Further information about storage conditions:**

Protect from heat and direct sunlight.

Store containers in a well ventilated area.

Store locked up.

**7.3 Specific end use(s):** No further relevant information available.**\* SECTION 8: Exposure controls/personal protection****8.1 Control parameters** No further information available.**Ingredients with limit values that require monitoring at the workplace:** Not required.**Additional information:** The lists valid during the making were used as basis.**8.2 Exposure controls****Appropriate engineering controls** No further data; see item 7.**Individual protection measures, such as personal protective equipment****General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Do not eat or drink while working.

Keep away from tobacco products.

**Respiratory protection:**

Use respiratory protective device with filters for organic and acid gas (or airline respirators in some cases) if formation of toxic gases is possible while the product is heated.

Use respiratory protective device with organic gas cartridge.

**Hand protection**

Protective gloves

**Material of gloves:** Rubber**Eye/face protection**

Safety glasses

**Body protection:** Protective work clothing**\* SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****General Information****Physical state**

Fluid

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<b>Colour:</b>	Pink
<b>Odour:</b>	Characteristic
<b>Odour threshold:</b>	Not determined.
<b>Melting point/freezing point:</b>	Undetermined.
<b>Boiling point or initial boiling point and boiling range</b>	149 °C
<b>Flammability</b>	Not applicable.
<b>Lower and upper explosion limit</b>	
<b>Lower explosive limit:</b>	No further information available.
<b>Upper explosive limit:</b>	Not determined.
<b>Flash point:</b>	Not applicable.
<b>Decomposition temperature:</b>	No further information available.
<b>pH</b>	Not determined. Not determined.
<b>Viscosity:</b>	
<b>Kinematic viscosity</b>	Not determined.
<b>Dynamic:</b>	Not determined.
<b>Solubility</b>	
<b>water at 25 °C:</b>	0.0149 g/l
<b>Partition coefficient n-octanol/water (log value)</b>	No further information available. Not determined.
<b>Vapour pressure:</b>	No further information available.
<b>Density and/or relative density</b>	
<b>Density at 20 °C:</b>	2.49 g/cm <sup>3</sup> Not determined.
<b>Relative density</b>	Not determined.
<b>Vapour density</b>	Not determined.
<b>Particle characteristics</b>	No further information available.
<b>9.2 Other information:</b>	
<b>Form:</b>	Liquid
<b>Auto-ignition temperature:</b>	Not determined.
<b>Explosive properties:</b>	Product does not present an explosion hazard.
<b>Evaporation rate</b>	Not determined.
<b>Information with regard to physical hazard classes</b>	
<b>Explosives</b>	Not applicable
<b>Flammable gases</b>	Not applicable
<b>Aerosols</b>	Not applicable
<b>Oxidising gases</b>	Not applicable
<b>Gases under pressure</b>	Not applicable
<b>Flammable liquids</b>	Not applicable
<b>Flammable solids</b>	Not applicable
<b>Self-reactive substances and mixtures</b>	Not applicable
<b>Pyrophoric liquids</b>	Not applicable
<b>Pyrophoric solids</b>	Not applicable
<b>Self-heating substances and mixtures</b>	Not applicable
<b>Substances and mixtures, which emit flammable gases</b>	
<b>in contact with water</b>	Not applicable
<b>Oxidising liquids</b>	Not applicable
<b>Oxidising solids</b>	Not applicable
<b>Organic peroxides</b>	Not applicable
<b>Corrosive to metals</b>	Not applicable
<b>Desensitised explosives</b>	Not applicable

**\* SECTION 10: Stability and reactivity****10.1 Reactivity** No further relevant information available.**10.2 Chemical stability****Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.

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**Trade name: OCTAFLUORO-1,4-DIODOBUTANE****10.3 Possibility of hazardous reactions:***Iodine may be liberated in the sun.**Photoreactive.**No dangerous reactions known under normal conditions of use.***10.4 Conditions to avoid:** *Keep away from heat, sparks, flame, high temperature.***10.5 Incompatible materials:***Acids, alkali**Water***10.6 Hazardous decomposition products:***Hydrogen iodide (HI)**Danger of toxic fluorine based pyrolysis products.***\* SECTION 11: Toxicological information****11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008***Acute toxicity Based on available data, the classification criteria are not met.***LD/LC50 values relevant for classification:****CAS: 375-50-8 1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane***Oral LD50 > 2000 mg/kg (Rat)**Dermal LD50 > 2000 mg/kg (Rat)**Inhalative LC50/4h 23 mg/l (Rat)***Skin corrosion/irritation:** *No further information available.***Serious eye damage/irritation:** *No further information available.***Respiratory or skin sensitisation:** *May cause an allergic skin reaction.***STOT-single exposure:** *May cause drowsiness or dizziness.***STOT-repeated exposure:** *No further information available.***Other information (about experimental toxicology):** *Chromosomal Aberration Study in vitro- Negative***Subacute to chronic toxicity:** *No further information available.***11.2 Information on other hazards:****Endocrine disrupting properties:***Substance is not listed.***\* SECTION 12: Ecological information****12.1 Toxicity****Aquatic toxicity:****CAS: 375-50-8 1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane***LC50/96h ≤ 0.192 mg/l (Fish) (OECD 203)**(Gobiocypris rarus) (estimated)**LC50/48h 0.75 mg/l (Daphnia) (OECD 202)**(Daphnia magna)**NOEC 1000 mg/l (Microorganisms) (OECD 109)**(activated sludge)**ErC50/72h 0.39 mg/l (Alga) (OECD 201)**(Pseudokirchneriella subcapitata)***12.2 Persistence and degradability:***Not easily biodegradable***CAS: 375-50-8 1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane***Biodegradation 0 % (Microorganisms) (BOD)***12.3 Bioaccumulative potential:****CAS: 375-50-8 1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane***BCF 700 (Fish)***12.4 Mobility in soil:** *No further relevant information available.*

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**12.5 Results of PBT and vPvB assessment**

**PBT:** No further relevant information available.

**vPvB:** No further information available.

**12.6 Endocrine disrupting properties** For information on endocrine disrupting properties see section 11.

**12.7 Other adverse effects:**

**Ecotoxicological effects:** no data

**Remark:** Very toxic for fish

**Additional ecological information:**

**General notes:**

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

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

**Uncleaned packaging**

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

**\* SECTION 14: Transport information**

**14.1 UN number or ID number**

**ADR, IMDG, IATA**

UN3082

**14.2 UN proper shipping name:**

**ADR, IATA**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane)

**IMDG:**

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane), MARINE POLLUTANT

**14.3 Transport hazard class(es):**

**ADR**



**Class:**

9 (M6) Miscellaneous dangerous substances and articles.

**Label:**

9

**IMDG, IATA**



**Class:**

9 Miscellaneous dangerous substances and articles.

**Label:**

9

**14.4 Packing group:**

**ADR, IMDG, IATA**

III

**14.5 Environmental hazards:**

Product contains environmentally hazardous substances: 1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane

**Marine pollutant:**

Yes

Symbol (fish and tree)

**Special marking (ADR):**

Symbol (fish and tree)

**Special marking (IATA):**

Symbol (fish and tree)

**14.6 Special precautions for user:**

Warning: Miscellaneous dangerous substances and articles.

**Hazard identification number (Kemler code):**

90

**EMS Number:**

F-A,S-F

**Stowage Category**

A

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**Trade name: OCTAFLUORO-1,4-DIODOBUTANE****14.7 Maritime transport in bulk according to IMO instruments****Transport/Additional information:**

Not applicable.

Avoid direct sunlight. Make sure of no damage, corrosion, leaks on the receptacles.

Take necessary measures for preventing cargo shift.

**ADR****Limited quantities (LQ):**

5L

**Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**Transport category:**

3

**Tunnel restriction code:**

-

**IMDG****Limited quantities (LQ)**

5L

**Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

**UN "Model Regulation":**

UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (1,1,2,2,3,3,4,4-OCTAFLUORO-1,4-DIODOBUTANE), 9, III

**\* SECTION 15: Regulatory information****15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

No further relevant information available.

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

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

**Hazard pictograms**

GHS07 GHS09

**Signal word** Warning**Hazard-determining components of labelling:**

1,1,2,2,3,3,4,4-Octafluoro-1,4-diiodobutane

**Hazard statements**

H317 May cause an allergic skin reaction.

H336 May cause drowsiness or dizziness.

H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statements**

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P312 Call a POISON CENTER/doctor if you feel unwell.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Seveso category** E1 Hazardous to the Aquatic Environment**DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II**

Substance is not listed.

**National regulations** No further information available.**15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.**\* SECTION 16: Other information**

The product is for the industrial use only. We do not guarantee the safety in case the product is used for the other purposes. When using the product for health-care application or food/feed application, consult us in advance.

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*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

**Department issuing SDS:** EHS Department**Contact:**<http://www.daikin.com/>[sales@daikinchem.de](mailto:sales@daikinchem.de)[www.daikinchem.de](http://www.daikinchem.de)**Abbreviations and acronyms:**

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)*

*ICAO: International Civil Aviation Organisation*

*ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*

*IMDG: International Maritime Code for Dangerous Goods*

*IATA: International Air Transport Association*

*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*

*EINECS: European Inventory of Existing Commercial Chemical Substances*

*LC50: Lethal concentration, 50 percent*

*LD50: Lethal dose, 50 percent*

*PBT: Persistent, Bioaccumulative and Toxic*

*vPvB: very Persistent and very Bioaccumulative*

*Skin Sens. 1: Skin sensitisation – Category 1*

*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*

*Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1*

**\* Data compared to the previous version altered.**