

1 Identification of the substance/preparation and of the company/undertaking

- **Product details**
- **Trade name:** HFC-23
- **Article number:** 23
- **Application of the substance / the preparation** dry etchant
- **Manufacturer/Supplier:**
DAIKIN INDUSTRIES, LTD.CHEMICAL DIVISION:
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2 Hazards identification

- **GHS label elements**

**Warning**

2.5/L - Contains gas under pressure; may explode if heated.

- **Storage:**
Protect from sunlight. Store in a well-ventilated place.

3 Composition/information on ingredients

- **Chemical characterization:**
- **CAS No. Description**
75-46-7 trifluoromethane

4 First-aid measures

- **General information:** Seek immediate medical advice.
- **After inhalation:** At high levels, cardiac arrhythmia may occur.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
In cases of frost bites, rinse with plenty of water. Do not remove clothing.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.
- **The following symptoms may occur:**
Frost bites
Causes asphyxiation in high concentrations. May cause an abnormal heart rhythm and prove suddenly fatal.

5 Fire-fighting measures

- **Suitable extinguishing agents:**
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **For safety reasons unsuitable extinguishing agents:** none
- **Special hazards caused by the substance, its products of combustion or resulting gases:**
During heating or in case of fire poisonous gases are produced.
- **Protective equipment:** Wear fully protective suit.

Safety Data Sheet

Printing date 19.01.2009

Revision: 19.01.2009

Trade name: HFC-23

(Contd. of page 1)

6 Accidental release measures

- **Person-related safety precautions:**

Keep people at a distance and stay on the windward side.

Ensure adequate ventilation

- **Measures for environmental protection:** Do not allow product to reach sewage system or any water course.

- **Measures for cleaning/collecting:** No special measures required.

- **Additional information:** See Section 8 for information on personal protection equipment.

7 Handling and storage

- **Handling:**

- **Information for safe handling:** Waste air is to be released into the atmosphere only via suitable separators.

- **Information about fire - and explosion protection:** The product is not flammable.

- **Storage:**

- **Requirements to be met by storerooms and receptacles:** Store only in unopened original receptacles.

- **Information about storage in one common storage facility:** Not required.

- **Further information about storage conditions:**

Keep container tightly sealed.

Protect from heat and direct sunlight.

- **Maximum storage temperature:** 40 °C

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Ingredients with limit values that require monitoring at the workplace:** Not required.

- **Additional information:** The lists valid during the making were used as basis.

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Keep away from tobacco products.

- **Respiratory protection:**

Wear respirator for organic gases, where leakage may occur.

Use suitable respiratory protective device in case of insufficient ventilation.

- **Protection of hands:**

To avoid skin problems reduce the wearing of gloves to the required minimum.



Protective gloves

- **Material of gloves**

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. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing

9 Physical and chemical properties

- **General Information**

Form:

Liquefied gas

Colour:

Colourless

(Contd. on page 3)

JP

Safety Data Sheet

Printing date 19.01.2009

Revision: 19.01.2009

Trade name: HFC-23

(Contd. of page 2)	
Odour:	<i>Ether-like</i>
· Change in condition	
Melting point/Melting range:	-160°C
Boiling point/Boiling range:	-82°C
· Flash point:	<i>Not applicable.</i>
· Danger of explosion:	<i>Product does not present an explosion hazard.</i>
· Vapour pressure at 25°C:	4,729 MPa
· Density at -100°C:	1,029 g/cm ³
· Solubility in / Miscibility with water:	<i>Not miscible or difficult to mix.</i>
· Segregation coefficient (n-octanol/water):	0,64 log POW

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:** alkali or alkaline earth metals--powdered Al, Zn, Mg, etc.
- **Dangerous reactions** No dangerous reactions known.
- **Dangerous decomposition products:** Fluorophosgene on contact with naked flame or red hot objects.

11 Toxicological information

- **Acute toxicity:** no data

12 Ecological information

- **Behaviour in environmental systems:**
- **Mobility and bioaccumulation potential:**
Due to the distribution coefficient n-octanol/water an accumulation in organisms is not expected.
- **General notes:**
Ozone depletion potential(ODP) : 0
Global warming potential(GWP) : 11,700

13 Disposal considerations

- **Product:**
- **Recommendation**
Incineration in an adequate incinerator is recommended.
Disposal must be made according to official regulations.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN "Model Regulation":** UN1984, TRIFLUOROMETHANE (REFRIGERANT GAS R 23), 2.2

JP

(Contd. on page 4)

Safety Data Sheet

Printing date 19.01.2009

Revision: 19.01.2009

Trade name: HFC-23

(Contd. of page 3)

15 Regulatory information

- **Safety phrases:**
3/7 Keep container tightly closed in a cool place.

16 Other information

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 MSDS:** Toxicology and Product Regulatory

- **Contact:** <http://www.daikin.com/>

- **Abbreviations and acronyms:**

GHS: Globally Harmonized System of Classification and Labelling of Chemicals
CAS: Chemical Abstracts Service (division of the American Chemical Society)

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