

Material Safety Data Sheet

According to 91/155 EEC(2001/58 EC)

Printing date: 20.05.2005

Reviewed on: 19.05.2005

* 1 Identification of substance:

Product details:

- Trade name: **Micro Freeze Circuit Cooler; MCC-FRZ**
Micro Blast Dry Circuit Cleaner; MCC-DST, MCC-DSTZ
Big Blast Dry Circuit Cleaner; MCC-AIR, MCC-DAIRZ

Application of the substance / the preparation

It is used to blow dust, lint and other loose contamination from circuit boards, keyboards and other hard to reach places. MCC-FRZ acts as a circuit chiller for troubleshooting components, instantly cooling chips to about -50° C.

Supplier/Manufacturer:

Micro Care Corporation
595 John Downey Drive
New Britain, CT 06051
United States of America
Tel.: +1-860-827-0626
Fax: +1-860-827-8105

Information department:

Tech support (Micro Care): Tel.: +1-860-827-0626
Email: techsupport@microcare.com

- Emergency information:** National Poisons Information Centre Tel.: +44 (0)870 6006266

2 Composition/Data on components:

- Chemical characterization:**
- CAS No. Description:**
811-97-2 1,1,1,2-tetrafluoroethane
- Identification number(s):**
- EINECS Number:** 2123770

* 3 Hazards identification

- Hazard description:** not applicable
- Information pertaining to particular dangers for man and environment:**
According to current European laws and regulations the product is not dangerous or toxic material (based on the available data).
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.
Keep out of the reach of children
- Classification system:**
The classification was made according to the latest editions of the EU-lists, and expanded using company data and specialized literature.
- Additional information:**
1,1,1,2-Tetrafluoroethane belongs to the group of fluorinated/Partly fluorinated hydrocarbons, which have no ozon-depleting properties.

* 4 First aid measures

- After inhalation:**
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness, place patients on their side in a stable position for transportation.
- After skin contact:**
Rinse with warm water.
In cases of frost bites, rinse with plenty of water. Do not remove clothing.
Call a doctor immediately.
- After eye contact:**
Protect unharmed eye.
Rinse the eyes with open eyelids for 10 - 15 minutes with water.
Seek medical treatment.

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(Contd. of page 1)

- **After swallowing:** void
- **Information for doctor:**
- **The following symptoms may occur:**
 - Frost bites
 - After inhalation vapour at high concentration levels:
 - Unconsciousness
 - Cardiac arrhythmia

* 5 Fire fighting measures

- **Suitable extinguishing agents:**
 - Extinguishing powder
 - Alcohol resistant foam
 - Carbon dioxide (CO₂)
 - Water

Use fire fighting measures that suit the environment.
- **Special hazards caused by the material, its products of combustion or resulting gases:**
 - Dangerous decomposition product see chapter 10: stability and reactivity
 - Formation of toxic gases is possible during heating or in case of fire.
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information:**
 - Heating leads to pressure increase entailing danger of bursting and explosion. Immediately cool neighbouring packages and containers with sprayed water and, if possible, remove them out of the danger zone
 - Collect contaminated fire fighting water separately. It must not enter the sewage system.
 - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

- **Person-related safety precautions:**
 - Wear protective clothing.
 - Ensure adequate ventilation
- **Measures for environmental protection:**
 - Do not allow product to reach sewage system or any water course.
 - Do not allow to penetrate the ground/soil.
- **Measures for cleaning/collecting:**
 - Allow to evaporate.
 - Ensure adequate ventilation.

* 7 Handling and storage

- **Handling**
- **Information for safe handling:**
 - Ensure good ventilation/exhaustion at the workplace.
 - Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).
 - Store in cool, dry place in tightly closed receptacles.
- **Information about protection against explosions and fires:**
 - The product is not flammable
 - For aerosols you have additionally pay attention to:
 - Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.
 - Do not spray on a naked flame or any incandescent material.
- **Storage**
- **Requirements to be met by storerooms and receptacles:**
 - Store cool and dry in a well ventilated area.
 - Observe official regulations on storing packagings with pressurized containers.
- **Information about storage in one common storage facility:** Do not store together with oxidizing and acidic materials.

(Contd. on page 3)

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(Contd. of page 2)

- **Further information about storage conditions:** Protect from heat and direct sunlight.
- **Storage class** 2B pressurized gas containers

* 8 Exposure controls and personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:** Not required.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal protective equipment**
- **General protective and hygienic measures:**
The usual precautionary measures should be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the skin.
- **Breathing equipment:** Not necessary if room is well-ventilated.
- **Protection of hands:**
Insulation gloves
Check protective gloves prior to each use for their proper condition.
- **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.
- **Penetration time of glove material:**
The exact break-through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing.

* 9 Physical and chemical properties:

· General Information

Form:	Liquefied gas
Colour:	Colourless
	Clear
Odour:	Ether-like

· Change in condition:

Melting point/Melting range: undetermined
Boiling point/Boiling range: -26.5°C

- **Flash point:** not applicable
- **Ignition temperature:** > 750°C
- **Self igniting:** Product is not self-igniting.
- **Danger of explosion:** Product does not present an explosion hazard.
- **Vapour pressure at 20°C:** 5716 hPa
- **Density at 25°C:** 1.208 g/cm³
- **Vapour density at 25°C:** 3.6
- **Solubility in / Miscibility with Water at 20°C:** 1.93 g/l

* 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.

(Contd. on page 4)

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(Contd. of page 3)

Conditions to be avoided: see chapter 7

- **Materials to be avoided:**

Strong acids
 Strong oxidants
 Strong bases
 Reactive metals

- **Dangerous products of decomposition:**

In the case of fire or at high temperatures the formation of the following decomposition products is possible.

Carbonyl fluoride
 Hydrofluoric acid
 Hydrogen fluoride
 Fluorophosgene

11 Toxicological information

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:** No toxicity data are available for the product itself.

- **Primary irritant effect:**

- **on the skin:** Continuing or repeated contact with the skin may cause skin disease.

- **on the eye:** Light irritation possible

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

Inhalation of concentrated vapours as well as oral intake will lead to anaesthesia-like conditions and headache, dizziness, etc.

In addition to local irritant manifestations, there is a narcotic effect when inhaling high concentrations, with the danger of central respiratory arrest.

The aerosol is a refrigerant. May cause frostbites.

* 12 Ecological information

- **Ecotoxicological effects:**

- **Aquatic toxicity:**

EC₅₀/48h 980 mg/l (daphnia magna)

LC₅₀/96h 450 mg/l (rainbow trout)

- **General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water.

According to appendix 3 of VwVwS dated 17.05.1999 (German regulation)

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

* 13 Disposal considerations

- **Product:**

- **Recommendation:**



Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Disposal according to instructions of local authorities.

- **Uncleaned packagings:**

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

(Contd. on page 5)

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(Contd. of page 4)

14 Transport information

· Land transport ADR/RID (cross-border)



- ADR/RID class: 2 5A Gases.
- Danger code (Kemler): 20
- UN-Number: 1950
- Packaging group: -
- Label: 2.2
- Description of goods: Aerosols

· Maritime transport IMDG:

- IMDG Class: 2
- UN Number: 1950
- Label: Aerosol
- Packaging group: -
- EMS Number: F-D,S-U
- Proper shipping name: AEROSOLS

· Air transport ICAO-TI and IATA-DGR:



- ICAO/IATA Class: 2.2
- UN/ID Number: 1950
- Label: 2.2
- Packaging group: -
- Proper shipping name: AEROSOLS, non-flammable

15 Regulations

· **Markings according to EC guidelines:**

Observe the general safety regulations when handling chemicals

The product is not subject to identification regulations under EC Directives and the Ordinance on Hazardous Materials (GefStoffV).

· **Special labelling of certain preparations:**

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use.

Keep out of the reach of children

· **National regulations**

- **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

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.

(Contd. on page 6)

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(Contd. of page 5)

· **Reasons for amendments:**

General revision
EC-directive: 2001/58/EC
WGK classification
Completion of toxicity data

· **Department issuing MSDS:**

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

Changes have been made to chapters marked with a *, as compared to the previous version.

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