

MATERIAL SAFETY DATA SHEET

Prepared: December 13, 2011

1. Identification

Product name: **DRYSURF MDF-1175**

Supplier's details :

Company name : HARVES Co., Ltd.
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2. Hazards identification

Title of classification: Classification standard not applicable.

GHS classification: Not applicable.

Signal word: None.

Hazard statement: When heated at a very high temperature, there may be produced hydrogen fluoride, perfluoroisobutylene and other poisonous decomposition products.

3. Composition/information on ingredients

Chemical identity: Mixture

Components:	<u>Contents (mass%)</u>	<u>CAS No.</u>
1. HYDROFLUOROETHER	90~95	163702-06-5 163702-05-4
2. PERFLUOROPOLYETHER	4~9	Nondisclosure
3. POLYTETRAFLUOROETHYLENE	Less than 5	Nondisclosure
Total	100	

Industrial Safety and Health Law: Not applicable.

PRTR (Pollutant Release and Transfer Register): Not applicable.

4. First aids measures

Eye: Immediately rinse the eyes with a quantity of clean water, and receive treatment from a doctor.

Skin: Wash the affected area with soap and water.

Breath: When symptoms appear, move the patient to a place of fresh air.

If the symptoms last, receive treatment from a doctor.

Ingestion: First aid not required. Wash mouth thoroughly with plenty of water if necessary.

Remarks: Considered that the product does not stimulate to the eyes, skin and respiratory system. The pollutants that may be contaminated during use are not taken into consideration. The foregoing first aids are the basic measures for removing foreign matters from eyes or skin.

5. Fire-fighting measures

Extinguish method: When fire is strong enough to threaten thermal decomposition of the product, wear complete protecting clothing including helmet, self respirator, fireproof clothing, protective bands for arms, body and legs, and head protective device. It is considered that there will be no anomalous effects during extinguishing activities. Avoid inhaling decomposition products generated by fire. When exposed to flames, spray water to cool the container and thus prevent bursting.

Fire extinguishing agent: Nonflammable.

Remarks: When exposed to an extremely high temperature, poisonous thermal decomposition products including hydrogen fluoride may be produced.

6. Accidental release measures

Individual protection: Reference the related preventive measures in the other items.

Disposition: Ventilate the surrounding; stop leaks; cover with an absorbent; and recover the leaked substance. Clear the residue with an adequate organic solvent. Follow the instructions on the label of organic solvent and safety information of MSDS. Collect in a metallic vessel and seal the vessel.

Remarks: When leaked in a large quantity in a closed space, give alarms to the other personnel and immediately escape. When exposed to a quantity of vapor in a closed space, there may be serious harms to health.

7. Handling and storage

Handling: Use in well-ventilated areas. Do not inhale vapor for a long time. Do not inhale thermal decomposition products. (Do not use in rooms where a kerosene stove or a gas stove is installed.) Do not smoke in working places. Smoking is allowed after washing hands well after work. Do not smoke cigarette that the product adhered to.

Intake prevention: While in use of the product, eating, drinking or smoking is prohibited. Places adhered to the product should be thoroughly washed with soap and water. Not the expected route of exposure.

Storage: Store in an ordinary storage.

Remarks: Keep the product from being exposed to a high temperature exceeding 200°C.

8. Exposure controls/ personal protection

Control concentrations: Not established.

Allowable concentrations: Not established.

Equipment measures: Use in a well-ventilated place. When ventilation is not satisfactory, use adequate respiratory protective devices.

Protective devices and individual protection:

Respiratory protective devices: Avoid inhaling vapor, mist or spray. When thermal decomposition occurs, never inhale thermal decomposition products. Choose a respirator certified upon the concentration of pollutants in air. Wear a half or full face respiratory mask.

Protective goggles: As a guideline for safety and health, wear safety goggles with side shield.

Protective gloves: As a standard for fine industrial hygiene, wear adequate gloves while handling the product.

Protective clothing: Avoid contact to skin.

9. Physical and chemical properties

Appearance, etc.	:	Suspension, Milky-white, liquid, slight ether odor.
Boiling point	:	Approx. 80°C (typical value)
Pour point	:	Below -40°C
Water solubility	:	Not soluble.
Flash point	:	None.
Density	:	Approx. 1.4g/cm ³

10. Stability and reactivity

Flash point:	:	None.
Combustion range-lower limit (%)	:	Nonflammable.
Combustion range-upper limit (%)	:	Nonflammable.
Substances to be avoided	:	Strong acids, strong alkalis and strong oxidizing agents and active fine metal powder. As a matter of general caution, avoid exposure to a temperature exceeding the boiling point.
Poisonous decomposition products	:	Reference "Harmfulness Information"
Stability	:	Stable.
Reactivity	:	Dangerous polymerization not occurring.

11. Toxicology information

Eye: Considered little stimulation to eyes.

Skin: Considered little stimulation to skin.

Inhalation: Considered no harm if thermal decomposition due to overheat does not occur. However, when inhaled a lot, lack of oxygen due to substitution of air may occur.

Ingestion: Little possibility of swallow of the product. Considered no harm.

Other harmful information: Temporary thermal decomposition products of the product are hydrogen fluoride and per fluorinated acid fluorides.

At the temperature of 300°C or higher, perfluoroisobutylene may be produced through thermal decomposition of the product. The proportion of generating perfluoroisobutylene is 1/1000 or less of the proportion of generating primary thermal decomposition products.

12. Ecological information

Ecological toxicity: This substance of low solubility shows no toxicity to aquatic microorganisms.

Miscellaneous: Ozone Depleting Potential (ODP): 0

13. Disposal considerations

Method of discard: Adequately dispose in the respective company according to the control of the rules and regulations concerned, or entrust to an industrial waste contractor. Recycle, if possible.

14. Transport information

UN No.: Not applicable.

UN Classification (IMO): Not applicable.

UN Classification (ICAO): Not applicable.

Cautions: Refer to the general cautions noted in "Cautions for handling and storage".

15. Regulatory information

Control under Japanese domestic law (main rules and regulations): Not applicable.

16. Other information

Reference : JIS Z 7250 : 2005

JIS Z 7251 : 2010

JIS Z 7252 : 2009

Japan Society for Occupational Health (2005)

ACGIH(2006)

Remarks : Assessment of danger and harmfulness is not always satisfactory, and so utmost care should be exercised for handling.

This Data Sheet is prepared based on JIS Z 7250:2005 and intended to provide the optimum information and updated data for adequately using and handling the product under proper conditions. It is no guarantee of the noted data and assessment.