

DuPont-Mitsui Fluorochemicals
Material Safety Data Sheet

MSDS No.117-2E

REVISED 5-Jul-2012

Vertrel® Sinera™

IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT INFORMATION

Product name

Vertrel® Sinera™

Recommended use of the chemical and restriction on use

Recommended Use: Cleaning agent,

Carrier fluid

Reaction fluid

Heat Transfer Agent

Restriction on Use: Medical use transplanted into human body

Application contacted with food directly

COMPANY IDENTIFICATION

Manufacturer/Distributor : DuPont-Mitsui Fluorochemicals Co., LTD.

1- 5-18, Sarugaku-Cho, Chiyoda-ku,

Tokyo, Japan 101-0064

Phone Numbers

Product Information : Vertrel® Marketing Division

TEL: 81-3-5281-5805

FAX: 81-3-5281-5885

Emergency : Safety, Health & Environmental Division

TEL:81-543-34-4827

FAX:81-543-34-2393

*Night or Holiday

: Night Duty Room

TEL:81-543-35-5507

HAZARDS IDENTIFICATION

Product Hazard Category

Chronic aquatic toxicity: Category 4

Label Content

Pictogram: Not required

Signal Word: Not required

Hazardous statements: May cause long lasting harmful effects to aquatic life

Harmful to aquatic life

Precautionary Statements:

Read safety precaution and understand before using.

During the handling, do not eat, drink or smoke.

Need well ventilation not to exceed Allowable Exposure Limit (AEL) over operation area.

Wear safety glasses, appropriate impervious gloves, apron, pants, and jacket, and avoid to contact with eye, skin, nose and throat.

Do not inhale vapor/mist.

Wash hands thoroughly after handling.

Overexposure may cause suffocation, central nervous system stimulation, skin irritant, eye irritant and mucous irritant.

If inhale: Immediately remove to fresh air. Keep person calm.

If swallowed: Do not induce vomiting. Give 2 glasses of water. Never give anything by mouth to an unconscious person.

If contacted: Immediately flush with plenty of water for at least 15minutes.

If person is exposure or apprehended to be exposure, consult a physician.

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Store in clean dry/well-ventilated area with tightly closed the lid.
Do not allow stored product to exceed 52 degC.
Keep away from ignition sources such as heat, fire and open flame.

Dispose of contents/container in accordance with local regulation.
Avoid release to the environment.

COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS

Material	CAS NO.	concentration
Proprietary Fluorocarbon Mixture	Not Disclosed	>99%

FIRST AID MEASURES

GENERAL ADVICE

Never give anything by mouth to an unconscious person. Victim to lie down in the recovery position, cover and keep him warm. If breathing is irregular or stopped, administer artificial respiration.

Inhalation

If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Skin Contact

Flush skin with water after contact. Wash contaminated clothing before reuse.

Eye Contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Ingestion

Material poses an aspiration hazard. If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

If vomiting occur naturally, have victim lean forward to reduce the risk of aspiration.

Expectable acute symptoms and delayed symptoms and the most important signs and symptoms
Irregular heartbeat, heart palpitation, weakness, headache, tremor, coughing, gasping, choking, shortness of breath, bluish discoloration of the skin, rapid breathing and heart rate, fever, pulmonary edema, or bleeding, drowsiness, confusion, coma seizures.

Note to Physicians

This material may make the heart more susceptible to arrhythmias. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

FIRE FIGHTING MEASURES

Extinguishing Media

Water spray, Foam, Dry Chemical, CO2

Specific Hazard

High temperature can decompose Vertrel®Sinera™ forming toxic substances such as hydrofluoric acid and possibly carbonyl fluoride. Fire heat may cause violent rupture of container and Vertrel®Sinera™ is decomposed forming toxic substances such as hydrogen fluoride and carbonyl fluoride.

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Firefighting Procedures

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers with water spray. Firefighting should be done from the windward site with enough distance.

Special Protective Equipments for Fire-Fighters

In the event of fire, evacuate personnel to a safety area. Wear self-contained breathing apparatus. Use personal protective equipment

ACCIDENTIAL RELEASE MEASURES

Personal Precautions

Evacuate personnel to safe area.

Operators wear the appropriate personal protective equipments such as gloves, respiratory mask, apron, goggle. Wear self-contained breathing apparatus if necessary.

Ventilate the area.

Environmental Precautions

Prevent further leakage or spill. Dike spill. Prevent material from entering sewers, waterways, or low areas.

Method for Cleaning up

Immediately evacuate the area and provide maximum ventilation, especially in low places where heavy vapors might collect. Soak up with sawdust, sand, oil dry or other absorbent materials. After all visible traces, including ignitable vapors, have been removed, thoroughly wet vacuum the area. Do not flush to sewer. If area of spill is porous, remove as much contaminated earth and gravel, etc. as necessary and place in closed containers for disposal.

HANDLING AND STORAGE

Handling**Technical Measures/Precautions**

Wash thoroughly after handling. Wash clothing after use.

The use of gloves is recommended when working with the material containers. Material should not be dispensed from its container by pouring, except for small samples containers where fume hoods or where other ventilation is used to manage the exposure limits. The use of drum pump is recommended for dispensing from shipping containers.

Precautions for safe handling

Avoid contact with eyes, skin or clothing. Avoid breathing vapors or mist. Do not enter or put face into the tank/container/machine which is covered by vapor.

Keep away from heat, sparks and flames.

At high temperature, as vapor/mist splash out during the opening of lid, cool container before opening of the lid. Do not close your face to the lid when open the lid.

Storage

Keep container tightly closed in a clean, dry well-ventilated area.

Keep away from heat, sparks and flames. Store away from bases.

Do not allow stored product to exceed 52 deg C to prevent leakage or potential rupture of container from pressure and expansion. Protect from freezing temperatures.

Incompatibilities

Incompatible with alkali or alkali earth metals, powdered Al, Zn, Be, Mg, strong bases, molten caustic alkali.

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EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Measures

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places. Keep container tightly closed. Vapors are heavier than air posing a hazard of asphyxia if they are trapped in enclosed or low places.

Personnel Protective Equipment

Eye/Face Protection

Wear safety glasses or chemical splash goggles.

Hand Protection

Impervious gloves

Respirators

Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH approved respiratory protection.

Control Parameters

PEL(OSHA)	: None Established
TLV(ACGIH)	: None Established
AEL*(DuPont)	: 500 ppm, 8 & 12 Hr. TWA

*: AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Form	: Liquid
Color	: Clear colorless
Odor	: Slight Ether like odor
Odor Threshold	: No data available
PH	: Neutral
Melting Point	: <-72 degC
Boiling Point	: 110-112 degC
Flash Point	: None (Tag Closed Cup, Tag Open Cup)
Explosion Limit	
Upper	: None
Lower	: None
Vapor Pressure	: 2.9 kPa (at 25degC)
Density	: 1.58 g/cm ³ (at 25degC)
Solubility in water	: negligible
Autoignition Temperature	: 348-351 degC
Viscosity	: 1.1 mPa·s (at 25degC)

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperature and storage conditions.

Possible Hazardous Reactions Under Specific Conditions

Not react with water. No oxidation. No autoreactive. Polymerization will not occur.

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Condition to avoid

Heat, sparks and flames

Incompatibility with Other Materials

This material is incompatible with strong Lewis acids such as aluminum trichloride, strong reducing agents such as alkali metals (Lithium, Sodium, and Potassium), alkaline-earth metals (Magnesium, Calcium), Powdered Aluminum or Zinc.

Hazardous Decomposition Products

Hydrofluoric acids and possibly carbonyl fluoride, Carbon dioxide, Carbon monoxide

The OSHA permissible exposure limit for HF is 3 ppm

TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral LD50 : >5,000 mg/kg in rats
Inhalation, 4 hour LC50 : >222.15mg/l in rats

Not classified as a skin irritant in laboratory tests.

Not classified as an eye irritant in laboratory tests

Not mutagenic in Ames assay

Not a skin sensitizer when tested in LLNA

No data available for carcinogenicity, extended repeated dose, reproductive or developmental toxicity

ECOLOGICAL INFORMATION

Aquatic Toxicity

48 hour LC50, Daphnia magna : EC50 >120 mg/L

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system. Disposal must be burned up with the facility which can properly deal with generated materials such as HF and other oxides.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO/IATA : Not Regulated

REGULATORY INFORMATION

US Federal Regulations

For LABORATORY R&D SAMPLES ONLY: One or more components of this product is not listed on EPA's Toxic Substances Control Act (TSCA) Chemical Inventory. Therefore, until this/these components get only be used for TSCA-excluded application or under the requirements of the TSCA R&D Exemption (40CFR 720.36)

OTHER INFORMATION

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The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. For specific handling, safety measures suitable for these circumstances should be taken.

This information is based upon technical information believed to be reliable. It is subjected to revision as additional knowledge and experience is gained.

End of MSDS