

H GALDEN® ZT SERIES (2)

1. PRODUCT AND COMPANY IDENTIFICATION

Product identifiers

Product name : **H GALDEN® ZT SERIES (2)**
 Product grade(s) : ZT130; ZT150
 Chemical Name : alfa-(Difluoromethyl)-omega-(difluoromethoxy)poly[oxy(difluoromethylene)/oxy(tetrafluoroethylene)]
 CAS-No. : -

Identified uses / Uses advised against

Identified uses : Heat transfer medium
 For industrial use only.

Manufacturer or supplier's details

Company : SOLVAY
 SPECIALTY POLYMERS JAPAN K.K.
 Address : 4TH FL. ,TORANOMON 30 MORI BUILDING
 TORANOMON 3-2-2, MINATO-KU
 J. 105-0001 TOKYO
 Telephone : +81354254330
 Fax : +81354254331
 E-mail address : sds.solvay@solvay.com
 Contact telephone number : IT: +39-2-3835-1
 (product information):

Contact in Japan

Emergency telephone number : **+81 345 789 341 [Carechem 24]**

2. HAZARDS IDENTIFICATION

GHS-Classification

This substance is not classified as dangerous according to Japanese legislation.

GHS-Labeling

No labelling

Other hazards which do not result in classification

- Thermal decomposition can lead to release of toxic and corrosive gases.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Type of product : Substance

Substance name:	Concentration
alfa-(Difluoromethyl)-omega-(difluoromethoxy)poly[oxy(difluoromethylene)/oxy(tetrafluoroethylene)]	> 99.9 %
CAS-No.: - / ENCS: - / ISHL: -	

4. FIRST AID MEASURES

Description of necessary first-aid measures



If inhaled

- Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.
- Oxygen or artificial respiration if needed.

In case of eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- If eye irritation persists, consult a specialist.

In case of skin contact

- Wash off with soap and water.

If swallowed

- Drink 1 or 2 glasses of water.
- Do NOT induce vomiting.
- If symptoms persist, call a physician.

Most important symptoms/effects, acute and delayed

Inhalation

- No known effect.

Skin contact

- Symptoms: Redness

Eye contact

- Contact with eyes may cause irritation.
- Redness

Ingestion

- Ingestion may provoke the following symptoms:
- Symptoms: Nausea, Vomiting, Diarrhoea

Indication of immediate medical attention and special treatment needed, if necessary

- None.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media

- Water
- powder
- Foam
- Dry chemical
- Carbon dioxide (CO₂)

Unsuitable extinguishing media

- None.

Specific hazards arising from the chemical

- The product is not flammable.
- Not explosive
- In case of fire hazardous decomposition products may be produced such as: Gaseous hydrogen fluoride (HF), Fluorophosgene

Special protective actions for fire-fighters

- Wear self-contained breathing apparatus and protective suit.
- When intervention in close proximity wear acid resistant over suit.
- Evacuate personnel to safe areas.
- Approach from upwind.
- Protect intervention team with a water spray as they approach the fire.
- Keep containers and surroundings cool with water spray.
- Keep product and empty container away from heat and sources of ignition.



6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel

- Prevent further leakage or spillage if safe to do so.

Advice for emergency responders

- Ensure adequate ventilation.
- Material can create slippery conditions.
- Sweep up to prevent slipping hazard.
- Keep away from open flames, hot surfaces and sources of ignition.

Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.

Methods and materials for containment and cleaning up

- Soak up with inert absorbent material.
- Suitable material for picking up
- Dry sand
- Earth
- Shovel into suitable container for disposal.

Reference to other sections

- Refer to protective measures listed in sections 7 and 8.

7. HANDLING AND STORAGE

Precautions for safe handling

- No special handling advice required.
- Ensure adequate ventilation.
- Use personal protective equipment.
- Keep away from heat and sources of ignition.
- To avoid thermal decomposition, do not overheat.
- Take measures to prevent the build up of electrostatic charge.
- Clean and dry piping circuits and equipment before any operations.
- Ensure all equipment is electrically grounded before beginning transfer operations.

Conditions for safe storage, including any incompatibilities

Storage

- No special storage conditions required.
- Keep away from heat and sources of ignition.
- Keep in properly labelled containers.
- Keep away from combustible material.
- Keep away from incompatible products
- Provide tight electrical equipment well protected against corrosion.
- Refer to protective measures listed in sections 7 and 8.

Packaging material

Suitable material

- glass
- Plastic material

Specific use(s)

- For further information, please contact: Supplier

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limit Values

Remarks:

- Threshold limit values of by-products from thermal decomposition



Hydrogen fluoride anhydrous

- US. ACGIH Threshold Limit Values 12 2010
time weighted average = 0.5 ppm
Remarks: as F
- US. ACGIH Threshold Limit Values 12 2010
Ceiling Limit Value = 2 ppm
Remarks: as F
- Japan. OELs - ISHL. (Workplace Environment Assessment Standards) 04 2009
Threshold limits = 0.5 ppm
- Japan. OELs - JSOH. (Japan Society of Occupational Health: Advisory Opinion on Permissible [Exposure] Limits) 05 2009
Ceiling Limit Value = 3 ppm
Ceiling Limit Value = 2.5 mg/m³
- US. ACGIH Threshold Limit Values 12 2010
Remarks: as F, Can be absorbed through skin.

Carbonyl difluoride

- US. ACGIH Threshold Limit Values 2009
time weighted average = 2 ppm
- US. ACGIH Threshold Limit Values 2009
Short term exposure limit = 5 ppm

Exposure controlsAppropriate engineering controls

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Refer to protective measures listed in sections 7 and 8.
- Apply technical measures to comply with the occupational exposure limits.

Individual protection measures

Respiratory protection

- No personal respiratory protective equipment normally required.
- Use respirator when performing operations involving potential exposure to vapour of the product.
- Use only respiratory protection that conforms to international/ national standards.

Hand protection

- Latex gloves
- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

Eye protection

- Tightly fitting safety goggles

Skin and body protection

- Long sleeved clothing
- Safety shoes

Hygiene measures

- Ensure that eyewash stations and safety showers are close to the workstation location.
- When using do not eat, drink or smoke.
- Wash hands before breaks and at the end of workday.
- Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls

- Dispose of rinse water in accordance with local and national regulations.

9. PHYSICAL AND CHEMICAL PROPERTIES**Physical and chemical properties**General Information

- | | |
|---------------------------|----------------------------|
| · Appearance | liquid |
| · Colour | colourless |
| · Odour | odourless |
| · Molecular Weight | Range of values: 497 - 572 |

Important health safety and environmental information

- | | |
|-------------|---------|
| · pH | No data |
|-------------|---------|



· pKa	No data
· Melting point/freezing point	not applicable
· Boiling point/boiling range	130 - 150 °C
· Flash point	The product is not flammable.
· Evaporation rate	No data
· Flammability (solid, gas)	No data
· Flammability	The product is not flammable.
· Explosive properties	Not explosive
· Vapour pressure	ca. 4.8 - 10.5 hPa, at 25 °C
· Vapour density	No data
· Density	1.65 - 1.67 g/cm ³ Temperature: 25 °C
· Bulk density	No data
· Solubility(ies)	insoluble, Water soluble, fluorinated solvents
· Solubility/qualitative	No data
· Partition coefficient: n-octanol/water	No data
· Autoignition temperature	No data
· Decomposition temperature	ca. 230 °C
· Viscosity	ca. 1.5 - 2 mPa.s, at 25 °C
· Oxidizing properties	Non oxidizer

Other information

Remarks	No data
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10. STABILITY AND REACTIVITY**Reactivity**

- No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable under recommended storage conditions.

Possibility of hazardous reactions

- No dangerous reaction known under conditions of normal use.

Conditions to avoid

- To avoid thermal decomposition, do not overheat.
- Keep away from flames and sparks.

Materials to avoid

- Combustible material, Flammable materials, Aluminum and magnesium in powder form above 100°C

Hazardous decomposition products

- Gaseous hydrogen fluoride (HF), Fluorophosgene



11. TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral toxicity

- LD50, rat, > 5,000 mg/kg (Molecular weight ~ 230)

Acute inhalation toxicity

- LC50, 4 h, rat, > 400 mg/l (Molecular weight ~ 230)

Acute dermal toxicity

- LD50, rat, > 2,000 mg/kg (Molecular weight ~ 230)

Skin corrosion/irritation

- rabbit, No skin irritation (Molecular weight ~ 230)

Serious eye damage/eye irritation

- rabbit, No eye irritation (Molecular weight ~ 230)

Respiratory or skin sensitization

- guinea pig, Did not cause sensitization on laboratory animals. (Molecular weight ~ 230)

Germ cell mutagenicity

- Not mutagenic in Ames Test. (Molecular weight ~ 230)

Carcinogenicity

- no data available

Reproductive toxicity

- no data available

Specific target organ toxicity - single exposure

- Remarks: no data available

Specific target organ toxicity - repeated exposure

- Inhalation, 28 Days, rat, 1,000 mg/kg, Remarks: NOEL, Subacute toxicity, Molecular weight ~ 230
- Inhalation, 28 Days, rat, 1,000 mg/kg, Remarks: NOEL, Subchronic toxicity, Molecular weight ~ 230

Aspiration hazard

- no data available

Other information

- Description of possible hazardous to health effects is based on experience and/or toxicological characteristics of several components.
- Thermal decomposition can lead to release of toxic and corrosive gases., Exposure to decomposition products, Causes severe irritation of eyes, skin and mucous membranes.

12. ECOLOGICAL INFORMATION

Toxicity

- no data available

Persistence and degradability

Abiotic degradation

- Result: no data available

Biodegradation

- Biochemical Oxygen Demand (BOD), < 0.5 mg/l
- non-biodegradable
- (Molecular weight ~ 300)

Bioaccumulative potential

Mobility in soil

- no data available



Other adverse effects

- Ecological injuries are not known or expected under normal use.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

- Can be incinerated, when in compliance with local regulations.
- The incinerator must be equipped with a system for the neutralisation or recovery of HF.
- In accordance with local and national regulations.

Contaminated packaging

- Empty containers can be landfilled, when in accordance with the local regulations.

14. TRANSPORT INFORMATION

International transport regulations

- Sea (IMO/IMDG)
- not regulated
- Air (ICAO/IATA)
- not regulated
- European Road/Rail (ADR/RID)
- not regulated
- Inland waterway transport
- not regulated

15. REGULATORY INFORMATION

Applicable Laws or Regulations

- The product falls under the following law:
- Monitoring Chemical Substance under the JCSCCL law
- .
- The product doesn't falls under the following laws:
- Pollutant Release and Transfer Registry (PRTR) Law
- ISHL Law
- PDSCL Law
- Japanese Fire Service Law

16. OTHER INFORMATION

Other information

- New (SDS)
- Distribute new edition to clients

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

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