

MATERIAL SAFETY DATA SHEET

Solchem® 507**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING****1.1. Identification of the substance or preparation**

Product name : Solchem® 507
Chemical characterisation : Mixture containing pentafluoroethane and 1,1,1-trifluoroethane.
Synonym(s) : R 507 (HFC 507)
Formula: : CF₃-CHF₂/CH₃-CF₃
CAS Number : 150621-87-7

1.2. Use of the substance/preparation

Recommended uses : - Refrigeration

1.3. Company Address

Address : DAICHEM TRADING SDN. BHD.
NO. 2, Jalan TPK 2/3, Seksyen 2,
Taman Perindustrial Kinrara, Puchong.
Selangor. Malaysia.
Tel. : +603-80759118
Fax : +603-80759843

2. COMPOSITION/INFORMATION ON INGREDIENTS**1,1,1-trifluoroethane**

CAS Number : 420-46-2
EC Number (EINECS) : 206-996-5
Symbols : F+
Phrases R : 12
Concentration : 50.00 %

Pentafluoroethane

CAS Number : 354-33-6
EC Number (EINECS) : 206-557-8
Concentration : 50.00 %

3. HAZARDS IDENTIFICATION

- Gas (liquefied).
- Preparation non classified according to Directive 1999/45/EC.
- In case of decomposition, releases hydrogen fluoride.

4. FIRST-AID MEASURES

4.1. Inhalation

- Remove the subject from the contaminated area.
- Oxygen or cardiopulmonary resuscitation if necessary.
- Consult with a physician in case of respiratory and nervous symptoms.

4.2. Eyes contact

- Keep eyelids open to allow evaporation of product.
- Flush eyes with running water for several minutes, while keeping the eyelids wide open.
- Consult with an ophthalmologist in case of persistent pain.

4.3. Skin contact

- Allow product to evaporate.
- Rinse with lukewarm running water.
- Consult with a physician in case of persistent pain or redness.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media

- In case of fire in close proximity, all means of extinguishing are acceptable (subject to section below).

5.2. Unsuitable extinguishing media

- No restriction.

5.3. Special exposure hazards

- Formation of dangerous gas/vapours in case of decomposition (see section 10).
- Gas/vapours combustion possible in presence of air in very particular conditions (see section 9 and/or consult the producer).

5.4. Protective measures in case of intervention

- Evacuate all non-essential personnel.
- In all cases wear self-contained breathing apparatus.
- When intervention in close proximity wear acid resistant over suit.
- After intervention, proceed to clean the equipment (take a shower, remove clothing carefully, clean and check).
- Intervention only by capable personnel who are trained and aware of the hazards of the product.

5.5. Other precautions

- If safe to do so, remove the exposed containers, or cool with large quantities of water.
- As for any fire, ventilate and clean the rooms before re-entry.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions

- Follow the protective measures given in section 5.
- Ventilate the premises.
- If safe to do so, without over exposing anyone, try to stop the leak.
- Keep away materials and products which are incompatible with the product (see section 10).

6.2. Environmental precautions

- Prevent discharges into the environment (atmosphere,...).

6.3. Methods for cleaning up

- Let the product evaporate.
- Prevent the product from entering sewers or confined places.

7. HANDLING AND STORAGE

7.1. Handling

- Operate in a well-ventilated area.
- Prevent product vapours decomposition from contacting hot spots.
- Prevent product vapours decomposition from electric arc action (welding).
- Use only equipment and materials which are compatible with the product.
- Keep away from ignition and heat sources.
- Keep away from reactive products (see section 10).

7.2. Storage

- In a ventilated, cool area.
- Keep away from heat sources.
- Keep away from reactive products (see section 10).

7.3. Specific use(s)

- For any particular use, please contact the supplier.

7.4. Other precautions

- Warn people about the dangers of the product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

1,1,1-trifluoroethane

TWA = 500 ppm

Pentafluoroethane

TWA = 1,000 ppm

8.2. Exposure controls

- Premises ventilation.
- Maintain employee exposures to levels below the applicable exposure limits.

8.2.1. Occupational exposure controls

8.2.1.1. Respiratory protection

- Minimum need if the local exhaust ventilation is adequate.
- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.

8.2.1.2. Hand protection

- Protective gloves - chemical resistant:
- Recommended materials: Polyvinylalcohol

8.2.1.3. Eye protection

- Wear protective goggles for all industrial operations.
- If risk of splashing, chemical proof goggles/face shield.

8.2.1.4. Skin protection

- Apron/boots of neoprene if risk of splashing.

8.2.1.5. Other precautions

- Shower and eye wash stations.
- Gloves, overalls and boots have to be double layered (protection against cold temperature).

8.2.2. Environmental exposure controls

- Respect local/federal and national regulations for aqueous emissions (see section 15).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information

Appearance	: pressurized liquefied gas.
Color/Colour	: colorless/colourless.
Odor/Odour	: slightly ethereal.

9.2. Important health, safety and environmental information

pH	: neutral
Boiling point	: = -46.5 °C
Flash point	: No data <i>Remark: Non-flammable mixture</i>
Flammability	: No flammability limit in air <i>Method: following standard ASTM E-681</i> <i>Remark: Non flammable gas.</i>
Explosive properties	: <i>Remark: See also section 10</i>
Oxidising properties	: Non oxidizer
Vapor/vapour pressure	: 11.14 bar <i>Temperature: 20 °C</i> : 23.55 bar <i>Temperature: 50 °C</i>
Density	: <u>Specific gravity:</u> = 1.07
Solubility	: Water 0.901 g/l 0,09 %
Partition coefficient: noctanol/water	: <u>log P o/w:</u> = 1.48
Viscosity	: Dynamic viscosity (liquid) = 141.2 mPa.s <i>Temperature: 25 °C</i>
Vapor/vapour density (air=1)	: = 3.45

9.3. Other information

Auto-flammability	: 728 °C
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10. STABILITY AND REACTIVITY

10.1. Conditions to avoid

- Heat/Sources of heat

10.2. Materials to avoid

- Alkaline metals and their alloys

10.3. Hazardous decomposition products

- Hydrogen fluoride
- Fluorophosgene

10.4. Other information

- Contact with alkaline and alkaline-earth metals may provoke violent reactions or explosions.
- The vapor is heavier than air, disperses at ground level.

11. TOXICOLOGICAL INFORMATION

11.1. Toxicological datas

Acute toxicity

- Oral route, LD 50, not applicable
- Dermal route, LD 50, not applicable
- Inhalation, LC 50, 4 h, rat, > 80 %
- Inhalation, LC 50, 4 h, Rat, > 60 % v/v air

Irritation

- No irritation signs noted during toxicity testing.

Sensitization

- No data

Chronic toxicity

- Inhalation, after a single exposure, dog, cardiac sensitization following adrenergic stimulation.
- Inhalation, after repeated exposure, rat, no observed effect.
- No mutagenic, teratogenic effects.
- No mutagenic, carcinogenic, teratogenic effects.

Comments

- No appreciable toxic effect

11.2. Health effects

Inhalation

- At high concentrations, risk of narcosis.
- At high concentrations, risk of cardiac arrhythmia.
- At high concentrations, risk of asphyxia by lack of oxygen.

Eyes contact

- (gas)
- Slight irritation.
- (Liquefied gas)
- Severe eye irritation, watering, redness and swelling of the eyelids.
- Risk of burns (frostbite).

Skin contact

- (gas)
- Negligible
- (liquefied gas)
- Cold sensation followed by redness of the skin.
- Risk of frostbite.
- In case of repeated contact : dry and chapped skin, risk of chronic dermatitis.

Ingestion

- Impossible risk (gas).

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

Acute ecotoxicity

- Result: no data

Chronic ecotoxicity

- Result: no data

12.2. Mobility

- Air, Henry's law constant (H) from 150 - 185 kPa.m³/mol
Result: considerable volatility
Conditions: 20 °C / calculated value
- Soil/sediments, adsorption, log KOC from 1.3 - 1.7
Conditions: calculated value
- Soil/sediments, adsorption, log KOC from 1.86 - 2.32
Conditions: calculated value

12.3. Persistence and degradability

Abiotic degradation

- Air, indirect photo-oxidation, t 1/2 = 28.2 year(s)
Conditions: sensitizer: OH radicals
Degradation's products: carbon dioxide / fluorhydric acid / trifluoroacetic acid
- Air, photolysis, ODP = 0
Result: no effect on stratospheric ozone
Reference value for CFC 11: ODP = 1.
- Air, greenhouse effect, GWP = 0.98
Reference value for CFC 11: GWP = 1.

Biotic degradation

- Aerobic, test ready biodegradability/closed bottle, degradation = 4 %, 28 day(s)
Result: non-readily biodegradable

12.4. Bioaccumulative potential

- Bioconcentration: log Po/w = 1.48
Result: non-bioaccumulable
Conditions: measured value

12.5. Other adverse effects

- Study in progress

12.6. Comments

- Product is persistent in air (atmospheric lifetime: 40 - 65 years).
- Product is not significantly hazardous for the aquatic environment as: considerable volatility.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment

- Dispose in compliance with local/federal and national regulations.
- It is recommended to contact the producer for recycling/recovery.

13.2. Packaging treatment

- To avoid treatments, as far as possible, use dedicated containers.

14. TRANSPORT INFORMATION

UN Number	1078
IATA Class:	2.2
Hazard label:	NON FLAMMABLE GAS
PSN: REFRIGERANT GAS N.O.S. (R507)	
IMDG Class:	2.2
Hazard label:	COMPRESSED GAS NON FLAMMABLE
Placard:	1078
EmS:	F-C, S-V
IMDG Name: REFRIGERANT GAS N.O.S. (R507)	
ADR/ADNR Class	2
Hazard label:	2.2
Placard:	20/1078
ADR/RID Name: REFRIGERANT GAS, N.O.S. (R507)	
RID Class:	2
Hazard label:	2.2 + 13
Placard:	20/1078
ADR/RID Name: REFRIGERANT GAS, N.O.S. (R507)	

15. REGULATORY INFORMATION

15.1. EC Labelling

- Not classified according to Directive 1999/45/EC.

16. OTHER INFORMATION

16.1. Reason for update

- System maintenance

This MSDS is intended for only the selected countries to which it is applicable. For example, this MSDS is not intended for use nor distribution within North America.

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.