1. PRODUCT AND COMPANY IDENTIFICATION

Product name : SumiOne

Synonyms : SumiOne Technical Grade

Manufacturer or supplier's details

Company : SUMITOMO CHEMICAL Co., Ltd.

Contact person : Environmental Health Division
7-1, Nihonbashi 2-chome, Chuo-ku, Tokyo 103-6020, Japan

Telephone : +81-6-6220-3675

Telefax : +81-6-6220-3492

Emergency telephone number : Asia - Pacific region (excluding China):
+65-3158-1074(CARECHEM24, Singapore)
China: 400-120-6011 (CARECHEM24, China, toll-free, access from China only)
Europe, Americas (excluding USA), Middle East, Africa, Israel (Europe and English Language speaking countries):+44-1235-239-670(CARECHEM24, UK)
Middle East/Africa (Arabic speaking countries):+44-1235-239-671(CARECHEM24, UK)
USA (Domestic call):+1-800-424-9300(CHEMTREC, USA)
USA (International call; collect calls accepted):+1-703-527-3887(CHEMTREC, USA)

E-mail address : ehd-sds@ya.sumitomo-chem.co.jp

Recommended use of the chemical and restrictions on use

Use : Active ingredient for insecticide

2. HAZARDS IDENTIFICATION

GHS Classification

Explosives	:	Not applicable
Flammable gases	:	Not applicable
Aerosols	:	Not applicable
Oxidizing gases	:	Not applicable
Gases under pressure	:	Not applicable
Flammable liquids	:	Classification not possible
Flammable solids	:	Not applicable
Self-reactive substances and mixtures	:	Classification not possible
Pyrophoric liquids	:	Not applicable

Pyrophoric solids	:	Not applicable
Self-heating substances and mixtures	:	Classification not possible
Substances and mixtures, which in contact with water, emit flammable gases	:	Not applicable
Oxidizing liquids	:	Classification not possible
Oxidizing solids	:	Not applicable
Organic peroxides	:	Classification not possible
Corrosive to metals	:	Classification not possible
Acute toxicity (Oral)	:	Category 5
Acute toxicity (Dermal)	:	Not classified
Acute toxicity (Inhalation - gas)	:	Not applicable
Acute toxicity (Inhalation - vapor)	:	Classification not possible
Acute toxicity (Inhalation - dust and mist)	:	Category 4
Skin corrosion/irritation	:	Not classified
Serious eye damage/eye irritation	:	Not classified
Respiratory sensitisation	:	Classification not possible
Skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
Specific target organ toxicity - single exposure	:	Category 1 (Nervous system)
Specific target organ toxicity - repeated exposure	:	Category 2 (Nervous system)
Aspiration hazard	:	Classification not possible
Acute aquatic toxicity	:	Category 1
Chronic aquatic toxicity	:	Category 1
Hazardous to the ozone layer	:	Classification not possible

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H303 May be harmful if swallowed.
H332 Harmful if inhaled.
H370 Causes damage to nervous system.
H373 May cause damage to nervous system through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P264 Wash face and hands thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

Response:

P391 Collect spillage.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/ doctor if you feel unwell.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P314 Get medical advice/attention if you feel unwell.
P321 Specific treatment （See "4. First-aid measure"）.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/container appropriately in accordance with local/regional/national/international regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Chemical Name	CAS-No.	Concentration(%)
2,3,5,6-Tetrafluoro-4-methoxymethylbenzyl (*EZ*)-(1*RS*, 3*RS*;1*RS*,3*SR*)-2,2-dimethyl-3-(prop-1-enyl) cyclopropanecarboxylate *trans*-isomer ratio: 97.0% min. 1*R*-isomer ratio: 95.0% min. (ISO common name：metofluthrin)	240494-70-6(racemic)	94.1-99.3

4. FIRST AID MEASURES

If inhaled	:	Remove person to fresh air and keep comfortable for breathing. Administer oxygen if breathing is difficult. If breathing has stopped, apply artificial respiration. Do not use mouth-to-mouth method. Rinse nose, mouth and throat with water. Keep person warm with a blanket etc. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Effect of exposure to substance may be delayed. Medical observation is indicated. Get immediate medical advice/attention.
In case of skin contact	:	Gently wash with plenty of soap and water. Remove/Take off immediately contaminated clothing and shoes. If skin irritation or rash occurs: Get medical advice/attention.
In case of eye contact	:	Do not rub eye. Hold eyelids apart. Begin to rinse with water as soon as possible and rinse cautiously for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention, if necessary.
If swallowed	:	Rinse mouth thoroughly with water and give large amounts of milk or water to people not unconscious. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention. Remove person to fresh air and keep comfortable for breathing. Keep person warm with a blanket etc. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Administer oxygen if breathing is difficult. If breathing has stopped, apply artificial respiration. Do not use mouth-to-mouth method. Effect of exposure to substance may be delayed. Medical observation is indicated.
Protection of first-aiders	:	During rescue operations, wear protective equipment (see "8. Exposure control/personal protection"). Give artificial respiration with the aid of pocket mask equipped with a one-way valve or other proper respiratory medical device; Do NOT use mouth-to-mouth method. Be aware of own risk during rescue!
Notes to physician	:	Phenobarbital treatment may be effective to convulsion in the setting of acute poisoning, as palliative treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical powder Regular foam Carbon dioxide Dry sand

Unsuitable extinguishing media	:	Straight streams
Specific hazards during firefighting	:	Cool containers with an appropriate cooling means, paying heed to incompatible hazardous substances (see "10. Stability and reactivity"). The combustion gas and/or the decomposition gas may contain an irritating, corrosive and/or toxic gas. Harmful gases (see "10. Stability and reactivity") may be released by fire and may cause dizziness, suffocation, or other health hazards. Harmful substances in the water runoff from fire control may have adverse environmental and biological effects.
Specific extinguishing methods	:	Keep upwind. Fight fire from a protected location. Keep unauthorized personnel away. In case of a large fire and large quantities: Evacuate the area and extinguish the fire from a distance in accordance with the risk of explosion. Protecting other nearby combustibles before they catch fire: Remove containers or sprinkle them with water, etc., if this can be done safely. Protecting the product from external fire: Remove product-containing containers to a safe place, or cool the nearby equipment with water, etc., if this can be done safely. If the fire cannot be stopped, let it burn itself out while cooling with water spray to prevent the fire from spreading. Confining and smothering fire is preferable. Stop leak if possible without any risk. Dike fire water for later disposal; do not spread the material.
Special protective equipment for firefighters	:	Wear regional, national, and local standards approved fire fighting turnout gear and positive pressure self-contained breathing apparatus (SCBA). Wear flame-resistant or fireproof clothes, with face shield, helmet and gloves.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Personal precautions Wear appropriate protective equipment (see "8. Exposure control/personal protection") to avoid contact of droplets with the eyes or skin, or inhalation of mist or vapors. Emergency procedures Evacuate people who are downwind, and keep upwind while working. Keep unauthorized personnel away. If the surrounding area may be affected (including health impairment), warn the nearby residents. Remove immediately all ignition sources nearby. Form large safety zone. In case of a large spill, use foam to reduce vapors. Prevention of secondary hazards ELIMINATE all ignition sources such as heat/sparks/open flames/hot surfaces/static discharges.

Prepare appropriate extinguishing agent. (See "5. Fire-fighting measures")
Prevent discharge into drain ditches, drain sewers, basements or closed areas.

Environmental precautions : Do not release the product to the environment.
Form a dike to prevent the leakage from flowing into waterways (rivers, sewers, etc.) and affecting the environment.

Methods and materials for containment and cleaning up : Collect the leakage promptly.
Stop leak if possible without any risk.
Collect the leakage in a sealed container as far as possible.
Dike far ahead of liquid spill for later disposal.
Absorb remaining liquid in dry earth, sand or other non-combustible material and remove to safe place.
Collect the entire amount by repeatedly sopping it up with a suitable absorbent material.
Use explosion-proof electrical/ventilating/lighting/equipment.
ELIMINATE all ignition sources such as heat/sparks/open flames/hot surfaces/static discharges.
Consult with an expert when collecting the leakage.
Collect the residue carefully and transfer it to a safe place.
Collect leakage after taking measures for safe handling (see "7. Handling and storage").
See "13. Disposal considerations".

7. HANDLING AND STORAGE

Technical measures : ELIMINATE all ignition sources!
Take precautionary measures against static electricity such as grounding and bonding, wearing anti-static footwear and clothing, using grounded conductive floor.
Use explosion-proof electrical/ventilating/lighting/equipment.
Prevent generation of mist.
Keep upwind while working, being ready for exposure to the leakage.
Use only outdoors or in a well-ventilated area.
Do not eat, drink or smoke when using this product.
Install appropriate equipment and wear appropriate personal protective equipment (see "8. Exposure control/personal protection").
Do not breathe mist or vapours.
Do not get in eyes or mouth or on skin.
Avoid contact with eyes, skin, and clothing.
Do not bring contaminated protective equipment into the rest area.
Wear an appropriate protective equipment to avoid contact to skin, mucosa membrane or eyes.
Use disposable protective clothing, if possible.
Contaminated work clothing should be disposed or be cleaned and reused, with appropriate way.
Dispose of contaminated protective clothing safely.

Local/Total ventilation : Ventilate by a system of local and/or general exhaust.

Advice on safe handling : Keep away from incompatible materials (see "10. Stability and

reactivity").
Avoid inhaling.

Conditions for safe storage : Keep in a fire-proof designed place.
Store under controlled lighting and appropriate ventilation.
Store locked up.
Take precautionary measures against static electricity such as grounding and bonding, wearing anti-static footwear and clothing, using grounded conductive floor.
Ground/bond container and receiving equipment.
Keep away from food, drink and animal feedingstuffs.
Store in a dark place.
Store in a well-ventilated place.
Keep cool.
Store in an area without drain or sewer access.
See "10. Stability and reactivity"

Packaging material : Use container ruled in UNRTDG (UN Recommendations on the Transport of Dangerous Goods).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures : Use a local and/or general ventilation system with absorber.
Provide facilities to wash hands, eyes, and the body at the working place.

Personal protective equipment

Respiratory protection : Be sure to use breathing protective equipment only chosen according to specific regulatory requirements after a risk assessment.
When an emergency or leak occurs, wear air respirator or positive pressure self-contained breathing apparatus (SCBA).

Hand protection : Be sure to use hand protective equipment only chosen according to specific regulatory requirements after a risk assessment.
Impervious gloves

Eye protection : Be sure to use eye protective equipment only chosen according to specific regulatory requirements after a risk assessment.
Chemical safety goggles or glasses and full face shield.

Skin and body protection : Be sure to use personal protective equipment (PPE) only chosen according to specific regulatory requirements after a risk assessment.
Suitable impervious protective clothing, including protective footwear, gloves, lab coat, apron or coveralls.

Hygiene measures : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use only outdoors or in a well-ventilated area, unless it can be handled in closed system.
Do not inhale this product.
Avoid all exposure to a person.

Do not get in eyes or mouth or on skin.
Do not eat, drink or smoke when using this product.
Contaminated work clothing should be disposed or be cleaned and reused, with appropriate way.
When disposing of contaminated protective equipment and work clothes, take appropriate measures to prevent contamination of the surrounding environment.
Wash face and hands thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Transparent viscous liquid
Colour	:	Colourless or pale yellow to light yellow
Odour	:	A slight characteristic odor
pH	:	5.24 (1% aqueous suspension 25 °C)
Melting point	:	-54.92 °C
Boiling point	:	340.36 °C
Flash point	:	178 °C Method: Cleveland Open Cup
Evaporation rate	:	no data available
Upper explosion limit / upper flammability limit	:	no data available
Lower explosion limit / Lower flammability limit	:	no data available
Vapour pressure	:	1.896×10^{-3} Pa (25 °C)
		8.969×10^{-4} Pa (20 °C)
Relative vapour density	:	no data available
Relative density	:	1.209 (20 °C)
Density	:	no data available
Water solubility	:	0.3462 - 0.5358 mg/l
Solubility in other solvents	:	> 250 g/l (20 °C) Solvent: *n*-Heptane
		> 250 g/l (20 °C) Solvent: Methanol
		> 250 g/l (20 °C) Solvent: Acetone
		> 250 g/l (20 °C)

		Solvent: *p*-Xylene > 250 g/l (20 °C) Solvent: Ethyl acetate
Partition coefficient: n-octanol/water	:	log Pow: 4.88
Auto-ignition temperature	:	no data available
Decomposition temperature	:	no data available
Viscosity, kinematic	:	19.3 mm^2/s (20 °C)

10. STABILITY AND REACTIVITY

Chemical stability	:	Material is stable under normal conditions.
Possibility of hazardous reactions	:	Mist may form an explosive mixture with air regardless of temperature. Strong bases Open flame Mechanical spark Electrical spark Welding spark Hot surface(s) Heating Friction heat Electrostatic discharge : may cause a fire and/or explosion Strong oxidizing agents Strong acids : may cause a fire, explosion, and generation of a toxic gas
Conditions to avoid	:	Open flame Mechanical spark Electrical spark Welding spark Heating Hot surface(s) Electrostatic discharge
Incompatible materials	:	Strong oxidizing agents Strong acids Strong bases
Hazardous decomposition products	:	Carbon monoxide Carbon dioxide Hydrocarbons Soot Hydrogen fluoride Fluorine compounds

11. TOXICOLOGICAL INFORMATION

Information on likely routes of	:	Oral

exposure		Inhalation Dermal Eyes

Acute toxicity

Acute oral toxicity	:	LD50(Rat): > 2,000 mg/kg Target Organs: Nervous system
Acute inhalation toxicity	:	LC50(Rat): 1,000 - 2,000 mg/m^3 Exposure time: 4 h Target Organs: Nervous system Remarks: Dusts, mists and fumes
Acute dermal toxicity	:	LD50(Rat): > 2,000 mg/kg Target Organs: No specific target organs noted.

Skin corrosion/irritation

Species	:	Rabbit
Result	:	Not irritating

Serious eye damage/eye irritation

Species	:	Rabbit
Result	:	Minimally irritating

Respiratory or skin sensitisation

Test Type	:	Skin sensitisation
Species	:	Guinea Pig
Method	:	Maximization test
Result	:	non-sensitizer

Germ cell mutagenicity

Genotoxicity in vitro	:	Test Type: Ames test Test system: S. typhimurium and E. coli Result: negative Test Type: chromosome aberration test Test system: Chinese hamster cell Result: negative
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse Cell type: Bone marrow Application Route: Oral Result: negative

Carcinogenicity

Species	:	Rat
Application Route	:	diet
Method	:	carcinogenicity study
Result	:	Neoplastic lesions (hepatocellular adenomas and carcinomas)
Target Organs	:	Liver (Hepatocellular adenomas and carcinomas are specific to a rat and not relevant to human cancer.)

Species	:	Mouse
Application Route	:	diet
Method	:	carcinogenicity study
Result	:	non-carcinogenic

Reproductive toxicity

Effects on fertility	:	Species: Rat Application Route: diet Method: reproductive toxicity study Result: no effect on reproduction Species: Rat Application Route: Oral Method: Study of Fertility and Early Embryonic Development to Implantation Result: no effect on fertility Species: Rat Application Route: Oral Method: Study for effects on pre- and postnatal development, including maternal function Result: no effect on fertility
Effects on foetal development	:	Species: Rat Application Route: Oral Method: teratology study Result: non-teratogenic Species: Rabbit Application Route: Oral Method: teratology study Result: non-teratogenic

STOT - single exposure

See Acute toxicity ("11. Toxicological information")

STOT - repeated exposure

Species	:	Rat
Application Route	:	Inhalation
Method	:	28-day repeated dose toxicity study
Target Organs	:	Nervous system
Species	:	Rat
Application Route	:	diet
Method	:	90-day repeated dose toxicity study
Target Organs	:	No specific target organs noted.
Species	:	Rat
Application Route	:	Dermal
Method	:	90-day repeated dose toxicity study
Target Organs	:	No specific target organs noted.
Species	:	Dog
Application Route	:	Oral
Method	:	90-day repeated dose toxicity study

Target Organs	:	Nervous system
Species	:	Dog
Application Route	:	Oral
Method	:	1-year chronic toxicity study
Target Organs	:	Nervous system

Aspiration toxicity

no data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxicity to fish	:	LC50 (Common Carp): 3.06 µg/l Exposure time: 96 hrs LC50 (Bluegill Sunfish): 2.7 µg/l Exposure time: 96 hrs LC50 (Rainbow Trout): 1.2 µg/l Exposure time: 96 hrs LC50 (Sheepshead Minnow): 8.7 µg/l Exposure time: 96 hrs
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna): 4.7 µg/l Exposure time: 48 hrs
Toxicity to algae	:	ErC50 (Green algae): 0.37 mg/l Exposure time: 72 hrs NOECr (Green algae): 0.11 mg/l Exposure time: 72 hrs
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.22 µg/l Species: Rainbow Trout
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.72 µg/l Exposure time: 21 Days Species: Daphnia magna

Persistence and degradability

Biodegradability	:	Result: lack of rapid biodegradability

Bioaccumulative potential

Bioaccumulation	:	Species: Common Carp Bioconcentration factor (BCF): 110 - 120

Mobility in soil

no data available

Other adverse effects

Ozone-Depletion Potential	:	Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer

Remarks: not listed to the Montreal Protocol

13. DISPOSAL CONSIDERATIONS

Disposal methods

Dispose of contents/container appropriately in accordance with local/regional/national/international regulations.

14. TRANSPORT INFORMATION

Additional information（See "Special safety measures concerning transportation or transportation means"）

The environmentally hazardous substance mark is not required when transported in sizes of ≤5L or ≤5kg.
The marine pollutant mark is not required when transported in sizes of ≤5L or ≤5kg.

International Regulations

UNRTDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (METOFLUTHRIN).
Class	:	9
Packing group	:	III
Labels	:	9

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (METOFLUTHRIN).
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous Dangerous Goods
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (METOFLUTHRIN).
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Special safety measures concerning transportation or transportation means

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packing containing a net quantity per single or inner packaging of 5L or less for liquids or having a net mass per single or inner packaging of 5kg or less for solids may be transferred as non-dangerous goods as provided in IATA Special Provision A197, IMDG code 2.10.2.7, and ADR/RID Special Provision 375.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Special precautions for user

Remarks : Make sure no damage, corrosion, leaks, and so on on the container(s) before transportation.
Load not to fall, drop, damage the product, and make sure to take measures to secure the loaded products.
Equip in automobile or ship for transportation with protective equipment (gloves, eyeglasses, mask, etc), and fire extinguisher, tools necessary for emergency.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

Please follow local regulations.

16. OTHER INFORMATION

Note

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packing containing a net quantity per single or inner packaging of 5L or less for liquids or having a net mass per single or inner packaging of 5kg or less for solids may be transferred as non-dangerous goods as provided in IATA Special Provision A197, IMDG code 2.10.2.7, and ADR/RID Special Provision 375.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.