

MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product name: SUMITHION Technical Grade

Synonyms: Fenitrothion Technical Grade

Limitations on use: Active ingredient for crop protection insecticide

Company Name: SUMITOMO CHEMICAL COMPANY, LIMITED
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2 HAZARDS IDENTIFICATION

GHS classification:

Physical hazards	Explosives	Classification not possible
	Flammable gases	Not applicable
	Flammable aerosols	Not applicable
	Oxidizing gases	Not applicable
	Gases under pressure	Not applicable
	Flammable liquids	Not classified
	Flammable solids	Not applicable
	Self-reactive substances and mixtures	Classification not possible
	Pyrophoric liquids	Not classified
	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	Not applicable
	Corrosive to metals	Classification not possible
Health hazards	Acute toxicity (Oral)	Category 4
	Acute toxicity (Dermal)	Category 3
	Acute toxicity (Inhalation - gas)	Not applicable
	Acute toxicity (Inhalation - vapour)	Classification not possible
	Acute toxicity (Inhalation - dust and mist)	Classification not possible
	Skin corrosion/irritation	Not classified
	Serious eye damage/eye irritation	Not classified
	Respiratory sensitizer	Classification not possible
	Skin sensitizer	Category 1B
Germ cell mutagenicity	Not classified	
Carcinogenicity	Not classified	
Toxic to reproduction	Not classified	

	Specific target organ toxicity - single exposure	Category 1 (Nervous system)
	Specific target organ toxicity - repeated exposure	Category 1 (Nervous system)
	Aspiration hazard	Classification not possible
Environmental hazards	Acute hazards to the aquatic environment	Category 1
	Chronic hazards to the aquatic environment	Category 1
	Hazardous to the ozone layer	Classification not possible

GHS label elements

Symbol(s):



Signal words: Danger

Hazard Statement(s):
 H302: Harmful if swallowed.
 H311: Toxic in contact with skin.
 H317: May cause an allergic skin reaction.
 H370: Causes damage to nervous system.
 H372: Causes 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 statement

Prevention:
 P270: Do not eat, drink or smoke when using this product.
 P260: Do not breathe dust/fume/gas/mist/vapours/spray.
 P273: Avoid release to the environment.
 P272: Contaminated work clothing should not be allowed out of the workplace.
 P264: Wash face and hands thoroughly after handling.
 P280: Wear protective gloves/protective clothing.

Response:
 P391: Collect spillage.
 P330: Rinse mouth.
 P361: Remove/Take off immediately all contaminated clothing.
 P302+P352: IF ON SKIN: Wash with plenty of soap and water.
 P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P309+P311: IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
 P333+P313: If skin irritation or rash occurs: Get medical advice/attention.
 P314: Get medical advice/attention if you feel unwell.
 P321: Specific treatment (See "4. First-aid measure").
 P363: Wash contaminated clothing before reuse.

Storage: P405: Store locked up.

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

Additional Information: May cause inhibition of cholin esterase activity.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Substance or Preparation: Substance

Chemical name	CAS-No.	Concentration
O,O-dimethyl O-(3-methyl-4-nitrophenyl) phosphorothioate (ISO common name: fenitrothion)	122-14-5	min. 93.0%

4 FIRST AID MEASURES

- Inhalation:** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method. Keep victim warm with a blanket etc. Get immediate medical advice/attention. 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.
- Skin contact:** Remove/Take off immediately contaminated clothing and shoes. Gently wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
- Eye contact:** Do not rub eye. 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.
- Ingestion** Rinse mouth. Try to induce vomiting by having affected person touch back of the throat with his finger or by giving him syrup of ipecac as directed on the package. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Keep victim warm with a blanket etc. Get immediate medical advice/attention. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Administer oxygen if breathing is difficult. Apply artificial respiration if victim is not breathing. Do not give victim anything to drink if he is unconscious. Effect of exposure to substance may be delayed. Medical observation is indicated.
- Personal Protection for First-aid Responders:** Be aware of own risk during rescue! Do not use mouth-to-mouth method; give artificial respiration with the aid of pocket mask equipped with a one-way valve or other proper respiratory medical device. Use personal protective equipment as required.
- Notes to the physician:** Atropine sulfate or pralidoxime iodide (PAM) is recommended to acute poisoning, as treatment strategy.

5 FIRE-FIGHTING MEASURES

- Extinguishing media:** Small fires: DRY sand, dry chemical powder, carbon dioxide, water spray
Largel fires: Regular foam, water spray, fog
- Unsuitable extinguishing media:** Straight streams of water.

Unusual Fire & Explosion Hazards:	Self-decomposition or self-ignition may be triggered by heat, chemical reaction, friction or impact. May be ignited by heat, sparks or flames. May decompose explosively when heated or involved in a fire. May burn violently. Decomposition may be self-accelerating and produce large amounts of gases. Containers may explode when heated. Fire may produce irritating, toxic and/or corrosive gases (See "10. Stability and reactivity") and fumes. Inhalation, ingestion or contact with vapors or substance may cause severe injury or death. Runoff and fire-control water may pollute waters.
Special Fire Fighting Procedures:	If possible, fight fire from protected position. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Keep upwind. Keep unauthorized personnel away. If possible, remove containers exposed to heat or cool with water. Do not subject containers to friction or shock. Cool containers with flooding quantities of water until well after fire is out. Do not scatter spilled material with high pressure water streams. Dike fire water for later disposal; do not spread the material.
Protective Measures:	Wear regional, national, and local standards approved fire fighting turnout gear and positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection. Structural firefighters' protective clothing will only provide limited protection from heat, and may not provide adequate protection from the harmful vapors or liquids.

6 ACCIDENTAL RELEASE MEASURES

Personal precautions:	Wear appropriate protective equipment. Use personal protection recommended in "8. Exposure control/personal protection". Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Isolate spill or leak area for proper distance in all directions. Provide adequate ventilation. Keep upwind. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapours/spray. Wash face and hands thoroughly after handling.
Emergency procedures:	Keep all unauthorized personnel upwind away. Consult an expert. Warn habitants surroundings. Navigation lock on waterways. Form large safety zone.
Environmental precautions:	Prevent entry spilled material and runoff from spillage control into waterways, sewers, basements or confined areas. Avoid release to the environment. Collect spillage.
Clean-up methods and materials and containment measures:	ELIMINATE all ignition sources such as heat/sparks/open flames/hot surfaces/static discharges. Consult an expert. Stop leak if possible without any risk. Take up with inert, damp, non-combustible material using clean non-sparking tools and place into loosely covered containers for later disposal.
Prevention of secondary hazards:	Prevent heat and contact with hot surface. Prepare appropriate extinguishing agent. (See "5. Fire-fighting measures") For large spill, Consider initial downwind evacuation for proper distance.

7 HANDLING AND STORAGE

Handling:

Technical measures: Use only outdoors or in a well-ventilated area. Keep upwind for handling outdoors as much as possible. Keep unauthorized personnel away. ELIMINATE all ignition sources. Use only non-sparking tools. Do not subject to heating/ friction/ shock. Avoid contact with eyes, skin, and clothing. AVOID ALL CONTACT! Prevent generation of mist.

Exhausting, Ventilation: Ventilate by appropriate method. (See "8. Exposure control/personal protection")

Notes: Install appropriate equipment and wear appropriate protective clothing. (See "8. Exposure control/personal protection") Wear protective gloves/protective clothing.

Safety measures: Wash hands and face thoroughly after handling. Eating, drinking and smoking in work areas is prohibited. Contaminated work clothing should not be allowed out of the workplace. Do not breathe dust/fume/gas/mist/vapours/spray. Wash contaminated clothing before reuse.

Storage:

Technical measures: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep containers tightly closed.

Conditions: Well ventilate by proper manner according to regional, national and local regulations. Keep in a fire-proof designed place. Provision to contain effluent from fire extinguishing. Store locked up. Protect against direct sunlight. Keep away from incompatible materials. See "10. Stability and reactivity". Keep away from food and feedstuffs.

Packaging materials: No information

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Appropriate engineering controls: Use a system of local and/or general exhaust to maintain product vapor, mist concentrations in air below occupational exposure standards. Personal protective equipment (PPE) should be chosen only according to specific regulatory requirements. Use in closed system as much as possible. Or ventilate. Eye wash facilities and emergency shower must be available when handling this product. Take precautionary measures against static electricity such as grounding and bonding, wearing anti-static footwear and clothing, using grounded conductive floor.

Personal protective equipment (PPE):

Respiratory Protection: Breathing protective equipment should be chosen only according to specific regulatory requirements. Wear positive pressure self-contained breathing apparatus (SCBA) in circumstance above occupational exposure standards for dust including emergency procedures and cleaning for accidental release.

Hand protection: Hand protective equipment should be chosen only according to specific regulatory requirements.
Impervious gloves

Eye protection: Eye protective equipment should be chosen only according to specific regulatory requirements. Chemical safety goggles

- Skin protection:** Personal protective equipment (PPE) should be chosen only according to specific regulatory requirements. Suitable impervious protective clothing, including protective footwear, gloves, lab coat, apron or coveralls. Use anti static discharge work wear and footwear.
- Specific Hygiene Measures:** PREVENT GENERATION OF VAPOR OR MIST. Avoid contact with skin and eyes. Do not eat, drink or smoke during work. Wash thoroughly after handling and before eating or drinking. Contaminated work clothing should not be allowed out of the workplace. Do not breathe dust/fume/gas/mist/vapours/spray.

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Oilly liquid
Color:	Pale yellow
Odor:	Slightly characteristic odor
pH:	3.9
Freezing point/Melting Point:	-1 to +1°C (PAI)
Boiling Point:	140 – 145°C (13.3 Pa)
Flash Point:	157°C (Pensky-Martens closed cup)
Autoignition Temperature:	299 ± 5°C
Flammability Limit - Upper (%)–:	No data available.
Flammability Limit - Lower (%)–:	No data available.
Vapor pressure:	0.00157 Pa (25°C)
Vapor density (air=1):	No data available.
Relative density:	1.33 (25°C)
Solubility in Water:	19.0 mg/l
Solubility (other):	Xylene: > 500 g/l (20°C) Methanol: > 500 g/l (20°C) Acetone: > 500 g/l (20°C) Ethyl acetate: > 500 g/l (20°C) Acetonitrile: > 500 g/l (20°C) n-Hexane: > 25 g/l (20°C)
Partition coefficient (n-octanol/water):	LogPow = 3.43 (20°C)
Decomposition Temperature:	ca 210°C
Evaporation Rate:	No data available.

10 STABILITY AND REACTIVITY

Stability:	Material is stable under normal conditions. Containers may explode when heated.
Possibility of hazardous reactions:	Vapors may form explosive mixtures with air. Heating this substance may produce gases which creates a high thermal hazard as fire or explosion. Strong oxidizers, strong acids, strong bases : fire and explosion hazards.
Conditions to avoid:	Ignition sources (open flame, spark, heat, hot surface, static discharge etc.), incompatibles, heating
Incompatible materials:	Strong oxidizers, strong acids, strong bases
Hazardous decomposition products:	Carbon monoxide, carbon dioxide, hydrocarbons, sulfur oxides, nitrogen oxides, phosphorous oxides, soot

11 TOXICOLOGICAL INFORMATION

Acute Toxicity:	
Oral:	Rat : LD50 330 mg/kg Mouse : LD50 1,030 mg/kg
Dermal:	Rat : LD50 890 mg/kg Mouse : LD50 >2,500 mg/kg
Inhalation:	Dust/Mist: Rat : LC50 (4h) >2.210 mg/l
Skin corrosion/irritation:	Rabbit (skin irritation/corrosion test) : Not irritating
Serious eye damage/eye irritation:	Rabbit (eye irritation/corrosion test) : Mildly Irritating
Respiratory sensitizer/Skin sensitizer:	Guinea Pig Skin sensitizer (Maximization test) : sensitizer
Germ cell mutagenicity:	
in vitro:	Ames test (S. typhimurium and E. coli) : negative Chromosome aberration test (chinese hamster cell) : negative Gene mutation test (chinese hamster cell) : negative
in vivo:	Micronucleus test (mouse, oral, bone marrow) : negative Dominant lethal test (rodents) : negative
Carcinogenicity:	Rat carcinogenicity study (diet) : non-carcinogenic Mouse carcinogenicity study (diet) : non-carcinogenic
Reproductive toxicity:	
Teratogenicity:	Rat teratology study (oral) : non-teratogenic Rabbit teratology study (oral) : non-teratogenic
Reproduction:	Rat two-generation reproductive toxicity study (diet) : no effect on reproduction
Specific target organ toxicity - single exposure:	Rat acute toxicity study (oral) : Nervous System

Specific target organ toxicity - repeated exposure:	Rat 6-month subchronic toxicity study (diet) : Nervous System Rat 90-day repeated dose toxicity study (diet) : Nervous System Rabbit 21-day repeated dose toxicity study (dermal) : Nervous System
Aspiration hazard:	No data available.
Other Effects:	No data available.

12 ECOLOGICAL INFORMATION

Ecotoxicity:

Aquatic Organisms:

Acute toxicity:

Fish:	Common Carp : LC50 (96 h) 3.55 mg/l Rainbow Trout : LC50 (96 h) 1.3 mg/l Bluegill Sunfish : LC50 (96 h) 2.5 mg/l
Crustacea:	<i>Daphnia magna</i> : EC50 (48 h) 0.0086 mg/l
Alga:	Green alga : EC50 (0-72 h) 2.3 mg/l

Chronic Toxicity:

Fish:	Rainbow Trout : NOEC 0.088 mg/l
Crustacea:	<i>Daphnia magna</i> : NOEC 0.087 µg/l
Alga:	Green alga : NOECr (0-72 h) 0.61 mg/l

Others:

No data available.

Biodegradation: Lack of rapid biodegradability

Bioaccumulation: BCF 29

Soil dissipation: No data available.

Hazardous to the ozone layer: Montreal Protocol. Substances that Deplete the Ozone Layer, as amended : 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

International standards:

IMDG - International Maritime Dangerous Goods Code:

UN number	UN3018
Proper Shipping Name	Organophosphorus pesticide, liquid, toxic (fenitrothion)
Class	6.1
Packing group	III
Subsidiary risk label	-
Marine Pollutant	Yes
EmS No.	F-A; S-A

IATA

UN number	UN3018
Proper Shipping Name	Organophosphorus pesticide, liquid, toxic (fenitrothion)
Class	6.1
Packing group	III
Subsidiary risk label	-

Domestic Standard: In compliance with domestic law.

**Specific Safety Measures
and Conditions for
Transportation:**

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.

15 REGULATORY INFORMATION

Please follow local regulations.

16 OTHER INFORMATION

Disclaimer:

The provided information is based on currently available law, materials, information, and data; however, information regarding concentration, physical and chemical properties, and hazard identification is not guaranteed. Precautions for safe handling are intended for a normal condition. In case of specific condition, please handle a product with appropriate safety measures that are compatible to the product usage.