

**ARETOR**

Version 1.0      Revision Date: 14.12.2022      SDS Number: S00043207413      This version replaces all previous versions.

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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : ARETOR

Design code : A19308A

**Manufacturer or supplier's details**

Company : Syngenta Asia Pacific Pte. Ltd

Address : No. 1 HarbourFront Avenue, #03-03 Keppel Bay Tower  
Singapore 098632

Telephone : +65 6333 6400

Emergency telephone number : +60 376 283 812

Telefax : +65 6338 1256

**Recommended use of the chemical and restrictions on use**

Recommended use : Insecticide

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**2. HAZARDS IDENTIFICATION****GHS Classification**

Acute toxicity (Oral) : Category 4

Serious eye damage/eye irritation : Category 2A

Specific target organ toxicity - single exposure : Category 2 (Nervous system)

Specific target organ toxicity - repeated exposure : Category 2 (Nervous system)

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

**GHS label elements**

Hazard pictograms :



Signal word : Warning

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Hazard statements : H302 Harmful if swallowed.  
 H319 Causes serious eye irritation.  
 H371 May cause damage to organs (Nervous system).  
 H373 May cause damage to organs (Nervous system) through prolonged or repeated exposure.  
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
 P260 Do not breathe mist or vapours.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P280 Wear eye protection/ face protection.

**Response:**  
 P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P391 Collect spillage.

**Storage:**  
 P405 Store locked up.

**Disposal:**  
 P501 Dispose of contents/ container to an approved waste disposal plant.

### Other hazards which do not result in classification

None known.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
(2-methoxymethylethoxy)propanol	34590-94-8	>= 70 -< 90
emamectin benzoate (ISO)	155569-91-8	>= 3 -< 10
2,6-di-tert-butyl-p-cresol	128-37-0	>= 0.25 -< 1

## 4. FIRST AID MEASURES

General advice : Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

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- If inhaled : Move the victim to fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Keep patient warm and at rest.  
Call a physician or poison control centre immediately.
- In case of skin contact : Take off all contaminated clothing immediately.  
Wash off immediately with plenty of water.  
If skin irritation persists, call a physician.  
Wash contaminated clothing before re-use.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Remove contact lenses.  
Immediate medical attention is required.
- If swallowed : If swallowed, seek medical advice immediately and show this container or label.  
Do NOT induce vomiting.
- Most important symptoms and effects, both acute and delayed : Lack of coordination  
Tremors  
Dilatation of the pupil
- Notes to physician : This material is believed to enhance GABA activity in animals. It is probably wise to avoid drugs that enhance GABA activity (barbiturates, benzodiazepines, valproic acid) in patients with potentially toxic mectin exposure.
- Toxicity can be minimized by early administration of chemical absorbents (e.g. activated charcoal).  
If toxicity from exposure has progressed to cause severe vomiting, the extent of resultant fluid and electrolyte imbalance should be gauged.  
Appropriate supportive parental fluid replacement therapy should be given, along with other required supportive measures as indicated by clinical signs, symptoms and measurements.

### 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Extinguishing media - small fires  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.  
Extinguishing media - large fires  
Alcohol-resistant foam
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.
- Specific hazards during fire-fighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).  
Exposure to decomposition products may be a hazard to health.  
Flash back possible over considerable distance.

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- Specific extinguishing methods : Do not allow run-off from fire fighting to enter drains or water courses.  
Cool closed containers exposed to fire with water spray.
- Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

### 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.  
Keep people away from and upwind of spill/leak.  
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.  
Remove all sources of ignition.  
Pay attention to flashback.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.  
Do not flush into surface water or sanitary sewer system.  
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).  
Clean contaminated surface thoroughly.  
Clean with detergents. Avoid solvents.  
Retain and dispose of contaminated wash water.

### 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid contact with skin and eyes.  
When using do not eat, drink or smoke.  
Use only in an area containing flame proof equipment.  
Take precautionary measures against static discharges.  
For personal protection see section 8.
- Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.  
Keep out of the reach of children.  
Keep away from combustible material.  
Keep in an area equipped with sprinklers.  
Keep away from food, drink and animal feedingstuffs.  
No smoking.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis

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(2-methoxymethylethoxy)propanol	34590-94-8	PEL (long term)	100 ppm 606 mg/m <sup>3</sup>	SG OEL
		PEL (short term)	150 ppm 909 mg/m <sup>3</sup>	SG OEL
		TWA	50 ppm	ACGIH
emamectin benzoate (ISO)	155569-91-8	TWA	0.02 mg/m <sup>3</sup>	Syngenta
2,6-di-tert-butyl-p-cresol	128-37-0	PEL (long term)	10 mg/m <sup>3</sup>	SG OEL
		TWA (Inhalable fraction and vapor)	2 mg/m <sup>3</sup>	ACGIH

**Engineering measures** : Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.

Where necessary, seek additional occupational hygiene advice.

### Personal protective equipment

**Respiratory protection** : No personal respiratory protective equipment normally required.  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

#### Hand protection

Material : Nitrile rubber  
Break through time : > 480 min  
Glove thickness : 0.5 mm

**Remarks** : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

**Eye protection** : Tightly fitting safety goggles  
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

**Skin and body protection** : Choose body protection in relation to its type, to the concen-

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tration and amount of dangerous substances, and to the specific work-place.

Remove and wash contaminated clothing before re-use.

Wear as appropriate:

Impervious clothing

Protective measures : The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : solution

Colour : orange yellow to light orange

Odour : aromatic

Odour Threshold : No data available

pH : 7.3  
Concentration: 100 % w/v

Melting point/range : No data available

Boiling point/boiling range : No data available

Flash point : 81 °C  
Method: Pensky-Martens closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapour pressure : No data available

Relative vapour density : No data available

Density : 0.98 g/cm<sup>3</sup> (20 °C)

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Solubility(ies)  
Water solubility : No data available  
Solubility in other solvents : No data available  
Partition coefficient: n-octanol/water : No data available  
Auto-ignition temperature : 205 °C  
Decomposition temperature : No data available  
Viscosity  
Viscosity, kinematic : No data available  
Explosive properties : Not explosive  
Oxidizing properties : The substance or mixture is not classified as oxidizing.  
Particle size : No data available

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**10. STABILITY AND REACTIVITY**

Reactivity : None reasonably foreseeable.  
Chemical stability : Stable under normal conditions.  
Possibility of hazardous reactions : No dangerous reaction known under conditions of normal use.  
Conditions to avoid : No decomposition if used as directed.  
Incompatible materials : None known.  
Hazardous decomposition products : No hazardous decomposition products are known.

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**11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure : Ingestion  
Inhalation  
Skin contact  
Eye contact

**Acute toxicity****Product:**

Acute oral toxicity : LD50 (Rat, female): 1,049 mg/kg  
Acute inhalation toxicity : LC50 (Rat, male and female): > 5.04 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

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Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

**Components:****emamectin benzoate (ISO):**

Acute oral toxicity : LD50 (Rat, female): 53 mg/kg

Acute inhalation toxicity : LC50 (Rat, female): 0.663 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat, male): 500 - 1,000 mg/kg

**Skin corrosion/irritation****Product:**

Species : Rabbit  
Result : No skin irritation

**Components:****emamectin benzoate (ISO):**

Species : Rabbit  
Result : No skin irritation

**Serious eye damage/eye irritation****Product:**

Species : Rabbit  
Result : Eye irritation

**Components:****emamectin benzoate (ISO):**

Species : Rabbit  
Result : Risk of serious damage to eyes.

**Respiratory or skin sensitisation****Product:**

Test Type : Local lymph node assay (LLNA)  
Species : Mouse  
Result : Did not cause sensitisation on laboratory animals.

**Components:****emamectin benzoate (ISO):**

Species : Guinea pig  
Result : Did not cause sensitisation on laboratory animals.



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**Germ cell mutagenicity****Components:****(2-methoxymethylethoxy)propanol:**

Germ cell mutagenicity - Assessment : In vitro tests did not show mutagenic effects

**emamectin benzoate (ISO):**

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

**Carcinogenicity****Components:****emamectin benzoate (ISO):**

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

**Reproductive toxicity****Components:****(2-methoxymethylethoxy)propanol:**

Reproductive toxicity - Assessment : Animal testing did not show any effects on foetal development.

**emamectin benzoate (ISO):**

Reproductive toxicity - Assessment : No toxicity to reproduction

**STOT - single exposure****Components:****emamectin benzoate (ISO):**

Target Organs Assessment : Nervous system  
: The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.  
Remarks : A single exposure may damage the central and peripheral nervous systems.

**STOT - repeated exposure****Components:****emamectin benzoate (ISO):**

Target Organs Assessment : Nervous system  
: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

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### 12. ECOLOGICAL INFORMATION

#### Ecotoxicity

##### Product:

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 7.07 mg/l  
Exposure time: 96 h

##### Components:

##### **emamectin benzoate (ISO):**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.174 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.001 mg/l  
Exposure time: 48 h

LC50 (Americamysis): 0.00004 mg/l  
Exposure time: 96 h

Toxicity to algae/aquatic plants : ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.0174 mg/l  
Exposure time: 72 h

NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.0046 mg/l  
End point: Growth rate  
Exposure time: 72 h

M-Factor (Acute aquatic toxicity) : 10,000

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.012 mg/l  
Exposure time: 32 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Americamysis): 0.000018 mg/l  
Exposure time: 28 d

M-Factor (Chronic aquatic toxicity) : 1,000

##### **2,6-di-tert-butyl-p-cresol:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0.57 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.48 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 0.4 mg/l  
Exposure time: 72 h

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NOEC (Desmodesmus subspicatus (green algae)): 0.4 mg/l  
End point: Growth rate  
Exposure time: 72 h

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Orange-red killifish)): 0.053 mg/l  
Exposure time: 42 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.023 mg/l  
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (Bacteria): > 10,000 mg/l  
Exposure time: 3 h

### Persistence and degradability

#### Components:

##### **emamectin benzoate (ISO):**

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life: 0.4 - 1.74 d  
Remarks: Product is not persistent.

##### **2,6-di-tert-butyl-p-cresol:**

Biodegradability : Result: Not readily biodegradable.

### Bioaccumulative potential

#### Components:

##### **emamectin benzoate (ISO):**

Bioaccumulation : Remarks: Does not bioaccumulate.

### Mobility in soil

#### Components:

##### **emamectin benzoate (ISO):**

Distribution among environmental compartments : Remarks: immobile

Stability in soil : Dissipation time: 0.335 - 2.56 d  
Percentage dissipation: 50 % (DT50)  
Remarks: Product is not persistent.

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### Other adverse effects

#### Components:

#### **emamectin benzoate (ISO):**

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

## 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Do not contaminate ponds, waterways or ditches with chemical or used container.  
Do not dispose of waste into sewer.  
Where possible recycling is preferred to disposal or incineration.  
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging : Empty remaining contents.  
Triple rinse containers.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.

## 14. TRANSPORT INFORMATION

### International Regulations

#### **UNRTDG**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EMAMECTIN BENZOATE AND 2,6-DI-T-BUTYL-4-METHYLPHENOL)  
Class : 9  
Packing group : III  
Labels : 9

#### **IATA-DGR**

UN/ID No. : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (EMAMECTIN BENZOATE AND 2,6-DI-T-BUTYL-4-METHYLPHENOL)  
Class : 9  
Packing group : III  
Labels : Miscellaneous  
Packing instruction (cargo aircraft) : 964  
Packing instruction (passenger aircraft) : 964  
Environmentally hazardous : yes

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### IMDG-Code

UN number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (EMAMECTIN BENZOATE AND 2,6-DI-T-BUTYL-4-METHYLPHENOL)  
 Class : 9  
 Packing group : III  
 Labels : 9  
 EmS Code : F-A, S-F  
 Marine pollutant : yes

### 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

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

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### Workplace Safety and Health Act and Workplace Safety and Health (General Provisions) Regulations: This product is subjected to the SDS, labelling, PEL and other requirements in the Act/Regulations.

Environmental Protection and Management Act and : Not applicable  
 Environmental Protection and Management (Hazardous Substances) Regulations

Fire Safety (Petroleum and Flammable Materials) Regulations : Not applicable

## 16. OTHER INFORMATION

Revision Date : 14.12.2022

Date format : dd.mm.yyyy

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
 SG OEL : Singapore. Workplace Safety and Health (General Provisions) Regulations - First Schedule Permissible Exposure Limits of Toxic Substances.

ACGIH / TWA : 8-hour, time-weighted average  
 SG OEL / PEL (long term) : Permissible Exposure Level (PEL) Long Term  
 SG OEL / PEL (short term) : Permissible Exposure Level (PEL) Short Term

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AIIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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.

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