# SAFETY DATA SHEET

# Deltamethrin Collar

| Version | Revision Date: | SDS Number: | Date of last issue: 03.11.2023 |
|---|---|---|---|
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## Section 1: Identification

**Product identifier** : Deltamethrin Collar

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

Recommended use : Veterinary product
Restrictions on use : Not applicable

**Manufacturer or supplier's details**

Company : MSD

Address : 50 Tuas West Drive
Singapore - Singapore 638408

Telephone : +1-908-740-4000

Emergency telephone number : 65 6697 2111 (24/7/365)

E-mail address : EHSDATASTEWARD@msd.com

## Section 2: Hazard identification

**Classification of the substance or mixture**

Acute toxicity (Oral) : Category 4

Skin sensitisation : Category 1

Reproductive toxicity : Category 2

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Central nervous system, Immune system)

Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Central nervous system)

**GHS Label elements, including precautionary statements**

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H361fd Suspected of damaging fertility. Suspected of damag-

ing the unborn child.
H373 May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

Precautionary statements : **Prevention:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

**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**

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).

## Section 3: Composition/information on ingredients

Substance / Mixture : Mixture

**Components**

| Chemical name | CAS-No. | Concentration (% w/w) |
|---|---|---|
| Polyvinyl chloride | 9002-86-2 | >= 50 -< 70 |
| Triphenyl phosphate | 115-86-6 | >= 30 -< 50 |
| deltamethrin (ISO) | 52918-63-5 | >= 3 -< 10 |
| Titanium dioxide | 13463-67-7 | >= 1 -< 10 |

## Section 4: First-aid measures

### Description of necessary first-aid measures

| | | |
|---|---|---|
| General advice | : | In the case of accident or if you feel unwell, seek medical advice immediately.<br>When symptoms persist or in all cases of doubt seek medical advice. |
| If inhaled | : | If inhaled, remove to fresh air.<br>Get medical attention. |
| In case of skin contact | : | In case of contact, immediately flush skin with soap and plenty of water.<br>Remove contaminated clothing and shoes.<br>Get medical attention.<br>Wash clothing before reuse.<br>Thoroughly clean shoes before reuse. |
| In case of eye contact | : | Flush eyes with water as a precaution.<br>Get medical attention if irritation develops and persists. |
| If swallowed | : | If swallowed, DO NOT induce vomiting.<br>Get medical attention.<br>Rinse mouth thoroughly with water.<br>Never give anything by mouth to an unconscious person. |

### Most important symptoms and effects, both acute and delayed

| | | |
|---|---|---|
| Risks | : | Harmful if swallowed.<br>May cause an allergic skin reaction.<br>Suspected of damaging fertility. Suspected of damaging the unborn child.<br>May cause damage to organs through prolonged or repeated exposure if swallowed.<br>May cause damage to organs through prolonged or repeated exposure if inhaled.<br>This product contains a pyrethroid.<br>Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning. |
| Protection of first-aiders | : | First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8). |

### Indication of any immediate medical attention and special treatment needed

| | | |
|---|---|---|
| Treatment | : | Treat symptomatically and supportively. |

## Section 5: Fire-fighting measures

### Extinguishing media

| | | |
|---|---|---|
| Suitable extinguishing media | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO2)<br>Dry chemical |
| Unsuitable extinguishing media | : | None known. |

### Special hazards arising from the substance or mixture

| | | |
|---|---|---|
| Specific hazards during fire-fighting | : | Exposure to combustion products may be a hazard to health. |
| Hazardous combustion products | : | Carbon oxides<br>Nitrogen oxides (NOx)<br>Bromine compounds<br>Chlorine compounds<br>Oxides of phosphorus |

**Special protective actions for fire-fighters**

| | | |
|---|---|---|
| Special protective equipment for firefighters | : | In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment. |
| Specific extinguishing methods | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Use water spray to cool unopened containers.<br>Remove undamaged containers from fire area if it is safe to do so.<br>Evacuate area. |

## Section 6: Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

| | | |
|---|---|---|
| Personal precautions | : | Use personal protective equipment.<br>Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8). |

**Environmental precautions**

| | | |
|---|---|---|
| Environmental precautions | : | Avoid release to the environment.<br>Prevent further leakage or spillage if safe to do so.<br>Retain and dispose of contaminated wash water.<br>Local authorities should be advised if significant spillages cannot be contained. |

**Methods and materials for containment and cleaning up**

| | | |
|---|---|---|
| Methods for cleaning up | : | Sweep up or vacuum up spillage and collect in suitable container for disposal.<br>Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.<br>Sections 13 and 15 of this SDS provide information regarding certain local or national requirements. |

## Section 7: Handling and storage

**Precautions for safe handling**

| | | |
|---|---|---|
| Technical measures | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section. |
| Local/Total ventilation | : | If sufficient ventilation is unavailable, use with local exhaust ventilation. |
| Advice on safe handling | : | Do not get on skin or clothing. |

Do not breathe dust, fume, gas, mist, vapours or spray.
Do not swallow.
Avoid contact with eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before re-use.
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

**Conditions for safe storage, including any incompatibilities**

Conditions for safe storage : Keep in properly labelled containers.
Store locked up.
Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:
Strong oxidizing agents

## Section 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure Limits

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| Polyvinyl chloride | 9002-86-2 | TWA (Respirable particulate matter) | 1 mg/m3 | ACGIH |
| Triphenyl phosphate | 115-86-6 | PEL (long term) | 3 mg/m3 | SG OEL |
| | | TWA | 3 mg/m3 | ACGIH |
| deltamethrin (ISO) | 52918-63-5 | TWA | 15 µg/m3 (OEB 3) | Internal |
| | Further information: DSEN, Skin | | | |
| | | Wipe limit | 100 µg/100 cm² | Internal |
| Titanium dioxide | 13463-67-7 | PEL (long term) | 10 mg/m3 | SG OEL |

| | | | | |
|---|---|---|---|---|
| | | TWA (Respirable particulate matter) | 2.5 mg/m3 (Titanium dioxide) | ACGIH |

**This substance(s) is not bioavailable and therefore does not contribute to a dust inhalation hazard.**

Titanium dioxide

**Biological occupational exposure limits**

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time | Permissible concentration | Basis |
|---|---|---|---|---|---|---|
| Triphenyl phosphate | 115-86-6 | red blood cell acetylcholinesterase (rbc ACHE) | Blood | | 70 % of baseline | SG BTLV |

**Appropriate engineering control measures** : All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
Minimize open handling.

**Individual protection measures, such as personal protective equipment (PPE)**

Eye/face protection : Wear safety glasses with side shields or goggles.
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Skin protection : Work uniform or laboratory coat.
Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
Use appropriate degowning techniques to remove potentially contaminated clothing.

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Particulates type

Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving.

**Section 9: Physical and chemical properties**

| | | |
|---|---|---|
| Appearance | : | solid |
| Colour | : | white |
| Odour | : | very faint |
| Odour Threshold | : | No data available |
| pH | : | No data available |
| Melting point/freezing point | : | No data available |
| Initial boiling point and boiling range | : | > 148.8 °C |
| Flash point | : | Not applicable |
| Evaporation rate | : | Not applicable |
| Flammability (solid, gas) | : | Not classified as a flammability hazard |
| Flammability (liquids) | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapour pressure | : | Not applicable |
| Relative vapour density | : | Not applicable |
| Relative density | : | No data available |
| Density | : | No data available |
| Solubility(ies) | | |
| Water solubility | : | No data available |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity | | |
| Viscosity, kinematic | : | Not applicable |
| Explosive properties | : | Not explosive |

| | | |
|---|---|---|
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight | : | Not applicable |
| Particle characteristics | | |
| Particle size | : | Not applicable |

## Section 10: Stability and reactivity

| | | |
|---|---|---|
| Reactivity | : | Not classified as a reactivity hazard. |
| Chemical stability | : | Stable under normal conditions. |
| Possibility of hazardous reactions | : | Can react with strong oxidizing agents. |
| Conditions to avoid | : | None known. |
| Incompatible materials | : | Oxidizing agents |
| Hazardous decomposition products | : | No hazardous decomposition products are known. |

## Section 11: Toxicological information

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

**Acute toxicity**

Harmful if swallowed.

**Product:**

| | | |
|---|---|---|
| Acute oral toxicity | : | Acute toxicity estimate: 1,668 mg/kg<br>Method: Calculation method |
| Acute inhalation toxicity | : | Acute toxicity estimate: > 5 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Method: Calculation method |

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat): > 5,000 mg/kg |
| Acute dermal toxicity | : | LD50 (Rabbit): > 10,000 mg/kg |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat): 66.7 mg/kg<br>LD50 (Rat): 9 - 139 mg/kg<br>LD50 (Mouse): 19 - 34 mg/kg |

| | | |
|---|---|---|
| Acute inhalation toxicity | : | LC50 (Rat): 0.8 mg/l<br>Exposure time: 2 h<br>Test atmosphere: dust/mist |
| Acute dermal toxicity | : | LD50 (Rabbit): 2,000 mg/kg<br><br>LD50 (Rat): > 800 mg/kg |
| Acute toxicity (other routes of administration) | : | LD50 (Rat): 2.5 mg/kg<br>Application Route: Intravenous<br><br>LD50 (Mouse): 10 mg/kg<br>Application Route: Intraperitoneal |

**Titanium dioxide:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 (Rat): > 5,000 mg/kg |
| Acute inhalation toxicity | : | LC50 (Rat): > 6.82 mg/l<br>Exposure time: 4 h<br>Test atmosphere: dust/mist<br>Assessment: The substance or mixture has no acute inhalation toxicity |

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 404 |
| Result | : | No skin irritation |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Result | : | No skin irritation |

**Titanium dioxide:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Result | : | No skin irritation |

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Result | : | No eye irritation |

| | | |
|---|---|---|
| Method | : | OECD Test Guideline 405 |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Result | : | Moderate eye irritation |

**Titanium dioxide:**

| | | |
|---|---|---|
| Species | : | Rabbit |
| Result | : | No eye irritation |

**Respiratory or skin sensitisation**

**Skin sensitisation**

May cause an allergic skin reaction.

**Respiratory sensitisation**

Not classified based on available information.

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Test Type | : | Maximisation Test |
| Exposure routes | : | Skin contact |
| Species | : | Guinea pig |
| Method | : | OECD Test Guideline 406 |
| Result | : | negative |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Test Type | : | Maximisation Test |
| Exposure routes | : | Dermal |
| Species | : | Guinea pig |
| Result | : | negative |

| | | |
|---|---|---|
| Test Type | : | Human repeat insult patch test (HRIPT) |
| Exposure routes | : | Dermal |
| Species | : | Humans |
| Result | : | positive |

**Titanium dioxide:**

| | | |
|---|---|---|
| Test Type | : | Local lymph node assay (LLNA) |
| Exposure routes | : | Skin contact |
| Species | : | Mouse |
| Result | : | negative |

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Chromosome aberration test in vitro<br>Method: OECD Test Guideline 473<br>Result: negative<br><br>Test Type: Bacterial reverse mutation assay (AMES)<br>Method: OECD Test Guideline 471<br>Result: negative<br><br>Test Type: In vitro mammalian cell gene mutation test<br>Result: negative |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Bacterial reverse mutation assay (AMES)<br>Result: negative<br><br>Test Type: DNA Repair<br>Test system: Escherichia coli<br>Result: negative<br><br>Test Type: Chromosomal aberration<br>Test system: Chinese hamster ovary cells<br>Result: negative<br><br>Test Type: In vitro mammalian cell gene mutation test<br>Test system: Chinese hamster lung cells<br>Concentration: LOAEL: 20 mg/kg<br>Result: positive |
| Genotoxicity in vivo | : | Test Type: Micronucleus test<br>Species: Mouse<br>Application Route: Oral<br>Result: negative<br><br>Test Type: dominant lethal test<br>Species: Mouse<br>Application Route: Oral<br>Result: negative<br><br>Test Type: sister chromatid exchange assay<br>Species: Mouse<br>Cell type: Bone marrow<br>Application Route: Oral<br>Result: negative |

**Titanium dioxide:**

| | | |
|---|---|---|
| Genotoxicity in vitro | : | Test Type: Bacterial reverse mutation assay (AMES)<br>Result: negative |

| | | |
|---|---|---|
| Genotoxicity in vivo | : | Test Type: In vivo micronucleus test<br>Species: Mouse<br>Result: negative |

**Carcinogenicity**

Not classified based on available information.

**Components:**

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Species | : | Mouse, male and female |
| Application Route | : | oral (feed) |
| Exposure time | : | 104 weeks |
| NOAEL | : | 8 mg/kg body weight |
| LOAEL | : | 4 mg/kg body weight |
| Result | : | positive |
| Target Organs | : | Lymph nodes |

| | | |
|---|---|---|
| Species | : | Rat, male and female |
| Application Route | : | oral (feed) |
| Exposure time | : | 2 Years |
| Result | : | negative |

| | | |
|---|---|---|
| Species | : | Dog, male and female |
| Application Route | : | oral (feed) |
| Exposure time | : | 2 Years |
| NOAEL | : | 1 mg/kg body weight |
| Result | : | negative |

**Titanium dioxide:**

| | | |
|---|---|---|
| Species | : | Rat |
| Application Route | : | inhalation (dust/mist/fume) |
| Exposure time | : | 2 Years |
| Method | : | OECD Test Guideline 453 |
| Result | : | positive |
| Remarks | : | The mechanism or mode of action may not be relevant in humans.<br>This substance(s) is not bioavailable and therefore does not contribute to a dust inhalation hazard. |

| | | |
|---|---|---|
| Carcinogenicity - Assessment | : | Limited evidence of carcinogenicity in inhalation studies with animals. |

**Reproductive toxicity**

Suspected of damaging fertility. Suspected of damaging the unborn child.

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Effects on fertility | : | Test Type: One-generation reproduction toxicity study<br>Species: Rat |

| | | |
|---|---|---|
| | | Application Route: Ingestion<br>Result: negative |
| Effects on foetal development | : | Test Type: Embryo-foetal development<br>Species: Rabbit<br>Application Route: Ingestion<br>Method: OECD Test Guideline 414<br>Result: negative |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Effects on fertility | : | Test Type: Three-generation reproduction toxicity study<br>Species: Rat<br>Application Route: oral (feed)<br>Early Embryonic Development: NOAEL: 50 mg/kg body weight<br>Symptoms: No effects on fertility, Embryo-foetal toxicity<br>Remarks: Significant toxicity observed in testing<br><br>Test Type: Two-generation reproduction toxicity study<br>Species: Rat<br>Application Route: Oral<br>Early Embryonic Development: LOAEL: 84 - 149 mg/kg body weight<br>Symptoms: No effects on fertility, Embryo-foetal toxicity<br><br>Test Type: Fertility<br>Species: Rat, male<br>Application Route: Oral<br>Fertility: LOAEL: 1 mg/kg body weight<br>Symptoms: Effects on fertility<br>Target Organs: Testes |
| Effects on foetal development | : | Test Type: Development<br>Species: Mouse<br>Application Route: oral (gavage)<br>Developmental Toxicity: LOAEL: 1 mg/kg body weight<br>Result: Skeletal malformations<br>Remarks: Maternal toxicity observed.<br><br>Test Type: Development<br>Species: Rat, female<br>Developmental Toxicity: NOAEL: 10 mg/kg body weight<br>Symptoms: No effects on foetal development<br><br>Test Type: Development<br>Species: Rabbit, female<br>Application Route: oral (gavage)<br>Developmental Toxicity: NOAEL: 16 mg/kg body weight<br>Symptoms: No effects on foetal development |
| Reproductive toxicity - Assessment | : | Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments. |

**STOT - single exposure**

Not classified based on available information.

**Components:**

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Assessment | : | May cause respiratory irritation. |

**STOT - repeated exposure**

May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

**Components:**

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Exposure routes | : | Ingestion |
| Target Organs | : | Central nervous system, Immune system |
| Assessment | : | Causes damage to organs through prolonged or repeated exposure. |

| | | |
|---|---|---|
| Exposure routes | : | inhalation (dust/mist/fume) |
| Target Organs | : | Central nervous system |
| Assessment | : | Causes damage to organs through prolonged or repeated exposure. |

**Repeated dose toxicity**

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Species | : | Rat |
| NOAEL | : | 105 mg/kg |
| Application Route | : | Ingestion |
| Exposure time | : | 90 Days |
| Method | : | OECD Test Guideline 408 |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Species | : | Rat, male and female |
| NOAEL | : | 1 mg/kg |
| LOAEL | : | 2.5 mg/kg |
| Application Route | : | Oral |
| Exposure time | : | 13 Weeks |
| Target Organs | : | Nervous system |
| Symptoms | : | hyperexcitability |

| | | |
|---|---|---|
| Species | : | Rat |
| LOAEL | : | 3 mg/m3 |
| Application Route | : | inhalation (dust/mist/fume) |

| | | |
|---|---|---|
| Exposure time | : | 2 wk / 5 d/wk / 6 h/d |
| Symptoms | : | Local irritation, respiratory tract irritation |

| | | |
|---|---|---|
| Species | : | Dog |
| NOAEL | : | 0.1 mg/kg |
| LOAEL | : | 1 mg/kg |
| Application Route | : | Oral |
| Exposure time | : | 13 Weeks |
| Target Organs | : | Nervous system |
| Symptoms | : | Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Salivation |

| | | |
|---|---|---|
| Species | : | Rat |
| NOAEL | : | 14 mg/kg |
| LOAEL | : | 54 mg/kg |
| Application Route | : | Oral |
| Exposure time | : | 91 d |
| Target Organs | : | Nervous system |

| | | |
|---|---|---|
| Species | : | Mouse |
| LOAEL | : | 6 mg/kg |
| Application Route | : | Oral |
| Exposure time | : | 12 Weeks |
| Target Organs | : | Immune system |
| Symptoms | : | immune system effects |

**Titanium dioxide:**

| | | |
|---|---|---|
| Species | : | Rat |
| NOAEL | : | 24,000 mg/kg |
| Application Route | : | Ingestion |
| Exposure time | : | 28 Days |

| | | |
|---|---|---|
| Species | : | Rat |
| NOAEL | : | 10 mg/m3 |
| Application Route | : | inhalation (dust/mist/fume) |
| Exposure time | : | 2 yr |

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure**

**Product:**

| | | |
|---|---|---|
| Skin contact | : | Remarks: Can be absorbed through skin.<br>Based on Animal Evidence<br>May irritate skin. |
| Ingestion | : | Remarks: May be harmful if swallowed. |

**Components:**

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Inhalation | : | Symptoms: respiratory tract irritation, Dizziness, Sweating, |

| | | |
|---|---|---|
| | | Headache, Nausea, Vomiting, anorexia, Fatigue, tingling, Palpitation, Blurred vision, muscle twitching |
| Skin contact | : | Symptoms: Skin irritation, Erythema, pruritis, Headache, Nausea, Vomiting, Dizziness, tingling, Sweating, muscle twitching, Blurred vision, Fatigue, anorexia, Allergic reactions |
| Ingestion | : | Symptoms: muscle pain, Small pupils |

## Section 12: Ecological information

### Toxicity

**Product:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Pimephales promelas (fathead minnow)): > 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 13 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202 |

**Ecotoxicology Assessment**

| | | |
|---|---|---|
| Chronic aquatic toxicity | : | Harmful to aquatic life with long lasting effects. |

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.4 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Mysidopsis bahia (opossum shrimp)): > 0.18 - 0.32 mg/l<br>Exposure time: 96 h |
| Toxicity to algae/aquatic plants | : | ErC50 (Raphidocelis subcapitata (freshwater green alga)): 3.73 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br><br>NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.25 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201 |
| M-Factor (Acute aquatic toxicity) | : | 1 |
| Toxicity to fish (Chronic toxicity) | : | EC10 (Danio rerio (zebra fish)): 0.0048 mg/l<br>Exposure time: 73 d<br>Method: OECD Test Guideline 234 |
| Toxicity to daphnia and other aquatic invertebrates (Chron- | : | NOEC (Daphnia magna (Water flea)): 0.254 mg/l<br>Exposure time: 21 d |

| | | |
|---|---|---|
| ic toxicity) | | Method: OECD Test Guideline 211 |
| M-Factor (Chronic aquatic toxicity) | : | 1 |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.00048 mg/l<br>Exposure time: 96 h<br><br>LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Mysidopsis bahia (opossum shrimp)): 0.0037 µg/l<br>Exposure time: 48 h<br><br>EC50 (Daphnia magna (Water flea)): 0.0035 mg/l<br>Exposure time: 48 h<br><br>LC50 (Gammarus fasciatus (freshwater shrimp)): 0.0003 µg/l<br>Exposure time: 96 h |
| Toxicity to algae/aquatic plants | : | EC50 (Pseudokirchneriella subcapitata (green algae)): > 9.1 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: No toxicity at the limit of solubility |
| M-Factor (Acute aquatic toxicity) | : | 1,000,000 |
| Toxicity to fish (Chronic toxicity) | : | NOEC (Pimephales promelas (fathead minnow)): 0.000022 mg/l<br>Exposure time: 36 d<br><br>NOEC (Pimephales promelas (fathead minnow)): 0.000017 mg/l<br>Exposure time: 260 d |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): 0.0041 µg/l<br>Exposure time: 21 d |
| M-Factor (Chronic aquatic toxicity) | : | 1,000,000 |

**Titanium dioxide:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l<br>Exposure time: 48 h |
| Toxicity to algae/aquatic | : | EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l |

| | | |
|---|---|---|
| plants | | Exposure time: 72 h |
| Toxicity to microorganisms | : | EC50: > 1,000 mg/l<br>Exposure time: 3 h<br>Method: OECD Test Guideline 209 |

**Persistence and degradability**

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Biodegradability | : | Result: Readily biodegradable.<br>Biodegradation: 83 - 94 %<br>Exposure time: 28 d |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Stability in water | : | Hydrolysis: 0 %(30 d) |

**Bioaccumulative potential**

**Components:**

**Triphenyl phosphate:**

| | | |
|---|---|---|
| Bioaccumulation | : | Species: Oryzias latipes (Orange-red killifish)<br>Bioconcentration factor (BCF): 144 |
| Partition coefficient: n-octanol/water | : | log Pow: 4.63 |

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Bioaccumulation | : | Species: Lepomis macrochirus (Bluegill sunfish)<br>Bioconcentration factor (BCF): 1,800 |
| Partition coefficient: n-octanol/water | : | log Pow: 4.6 |

**Mobility in soil**

**Components:**

**deltamethrin (ISO):**

| | | |
|---|---|---|
| Distribution among environmental compartments | : | log Koc: 7.2 |

**Other adverse effects**

No data available

## Section 13: Disposal considerations

**Disposal methods**

| | | |
|---|---|---|
| Waste from residues | : | Do not dispose of waste into sewer. |

| | | |
|---|---|---|
| Contaminated packaging | : | Dispose of in accordance with local regulations.<br>Empty containers should be taken to an approved waste handling site for recycling or disposal.<br>If not otherwise specified: Dispose of as unused product. |

## Section 14: Transport information

### International Regulations

**UNRTDG**

| | | |
|---|---|---|
| UN number | : | Not applicable |
| UN proper shipping name | : | Not applicable |
| Transport hazard class(es) | : | Not applicable |
| Subsidiary risk | : | Not applicable |
| Packing group | : | Not applicable |
| Labels | : | Not applicable |
| Environmentally hazardous | : | no |

**IATA-DGR**

| | | |
|---|---|---|
| UN/ID No. | : | Not applicable |
| UN proper shipping name | : | Not applicable |
| Class | : | Not applicable |
| Subsidiary risk | : | Not applicable |
| Packing group | : | Not applicable |
| Labels | : | Not applicable |
| Packing instruction (cargo aircraft) | : | Not applicable |
| Packing instruction (passenger aircraft) | : | Not applicable |

**IMDG-Code**

| | | |
|---|---|---|
| UN number | : | Not applicable |
| UN proper shipping name | : | Not applicable |
| Class | : | Not applicable |
| Subsidiary risk | : | Not applicable |
| Packing group | : | Not applicable |
| Labels | : | Not applicable |
| EmS Code | : | Not applicable |
| Marine pollutant | : | Not applicable |

**Transport in bulk according to IMO instruments**

Not applicable for product as supplied.

**Special precautions for user**

Not applicable

## Section 15: Regulatory information

**Safety, health and environmental regulations specific for the product in question**

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 Environmental Protection and Management (Hazardous Substances) Regulations | : | Not applicable |
| Fire Safety (Petroleum and Flammable Materials) Regulations | : | Not applicable |

**The components of this product are reported in the following inventories:**

| | | |
|---|---|---|
| AICS | : | not determined |
| DSL | : | not determined |
| IECSC | : | not determined |

## Section 16: Other information

| | | |
|---|---|---|
| Revision Date | : | 06.04.2024 |

**Further information**

| | | |
|---|---|---|
| Sources of key data used to compile the Safety Data Sheet | : | Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, http://echa.europa.eu/ |

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

| | | |
|---|---|---|
| Date format | : | dd.mm.yyyy |

**Full text of other abbreviations**

| | | |
|---|---|---|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| SG BTLV | : | Singapore. Biological Threshold Limit Values |
| 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 |

AIIC - 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 Or-

ganisation 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; TECI - 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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

SG / EN