

**Deltamethrin (2.5%) Formulation**

Version 4.5      Revision Date: 10/01/2022      SDS Number: 2656122-00012      Date of last issue: 04/09/2022  
Date of first issue: 03/29/2018

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**SECTION 1. IDENTIFICATION**

Product name : Deltamethrin (2.5%) Formulation

**Manufacturer or supplier's details**

Company name of supplier : Merck & Co., Inc  
Address : 126 E. Lincoln Avenue  
Rahway, New Jersey U.S.A. 07065  
Telephone : 908-740-4000  
Emergency telephone : 1-908-423-6000  
E-mail address : EHSDATASTEWARD@merck.com

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

Recommended use : Veterinary product

Restrictions on use : Not applicable

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**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)**





Flammable liquids : Category 3  
Skin irritation : Category 2  
Serious eye damage : Category 1  
Skin sensitization : Category 1  
Germ cell mutagenicity : Category 1B  
Carcinogenicity : Category 1B  
Reproductive toxicity : Category 2  
Specific target organ toxicity : Category 3  
- single exposure  
Specific target organ toxicity : Category 1 (Central nervous system, Immune system)  
- repeated exposure (Oral)  
Specific target organ toxicity : Category 1 (Central nervous system)  
- repeated exposure  
(Inhalation)  
Aspiration hazard : Category 1

**GHS label elements**

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- Hazard pictograms :    
- Signal Word : Danger
- Hazard Statements : H226 Flammable liquid and vapor.  
H304 May be fatal if swallowed and enters airways.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H336 May cause drowsiness or dizziness.  
H340 May cause genetic defects.  
H350 May cause cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.  
H372 Causes 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.  
P210 Keep away from heat, sparks, open flame and hot surfaces. No smoking.  
P233 Keep container tightly closed.  
P241 Use explosion-proof electrical, ventilating and lighting equipment.  
P242 Use only non-sparking tools.  
P243 Take precautionary measures against static discharge.  
P260 Do not breathe mist or vapors.  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.
- Response:**  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER.

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P308 + P313 IF exposed or concerned: Get medical attention.  
 P331 Do NOT induce vomiting.  
 P333 + P313 If skin irritation or rash occurs: Get medical attention.  
 P362 + P364 Take off contaminated clothing and wash it before reuse.

### Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.  
 P405 Store locked up.

### Disposal:

P501 Dispose of contents and container to an approved waste disposal plant.

### Other hazards

Vapors may form explosive mixture with air.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
Solvent naphtha (petroleum), light aromatic	64742-95-6	>= 50 - < 70
Cottonseed oil	8001-29-4	>= 30 - < 50
Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts	Not Assigned	>= 1 - < 5
4-Nonylphenol, branched, ethoxylated	127087-87-0	>= 1 - < 5
Deltamethrin (ISO)	52918-63-5	>= 1 - < 5
2,6-Di-tert-butyl-p-cresol	128-37-0	>= 1 - < 5

Actual concentration is withheld as a trade secret

## SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.  
 Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
 Get medical attention.  
 Wash clothing before reuse.  
 Thoroughly clean shoes before reuse.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
 If easy to do, remove contact lens, if worn.  
 Get medical attention immediately.

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|---|---|---|
| If swallowed  | : | If swallowed, DO NOT induce vomiting.<br>If vomiting occurs have person lean forward.<br>Call a physician or poison control center immediately.<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 | : | May be fatal if swallowed and enters airways.<br>Causes skin irritation.<br>May cause an allergic skin reaction.<br>Causes serious eye damage.<br>May cause drowsiness or dizziness.<br>May cause genetic defects.<br>May cause cancer.<br>Suspected of damaging fertility or the unborn child.<br>Causes damage to organs through prolonged or repeated exposure if swallowed.<br>Causes damage to organs through prolonged or repeated exposure if inhaled. |
| 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).   |
| Notes to physician  | : | Treat symptomatically and supportively.   |
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### SECTION 5. FIRE-FIGHTING MEASURES

- |  |   |   |
|--|---|---|
| Suitable extinguishing media                   | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical  |
| Unsuitable extinguishing media                 | : | High volume water jet   |
| Specific hazards during fire fighting          | : | Do not use a solid water stream as it may scatter and spread fire.<br>Flash back possible over considerable distance.<br>Vapors may form explosive mixtures with air.<br>Exposure to combustion products may be a hazard to health.             |
| Hazardous combustion products                  | : | Carbon oxides<br>Nitrogen oxides (NO <sub>x</sub> )<br>Bromine compounds<br>Sulfur oxides<br>Metal oxides   |
| 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. |
| Special protective equipment for fire-fighters | : | In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment.  |
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### SECTION 6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions, protective equipment and emergency measures | : | Remove all sources of ignition.<br>Use personal protective equipment. |
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- gency procedures : Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g., by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
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.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

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### SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.  
Use explosion-proof electrical, ventilating and lighting equipment.
- Advice on safe handling : Do not get on skin or clothing.  
Do not breathe mist or vapors.  
Do not swallow.  
Do not get in 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  
Non-sparking tools should be used.  
Keep container tightly closed.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Take precautionary measures against static discharges.  
Do not eat, drink or smoke when using this product.  
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.  
Store locked up.

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Materials to avoid : Keep tightly closed.  
 Keep in a cool, well-ventilated place.  
 Store in accordance with the particular national regulations.  
 Keep away from heat and sources of ignition.  
 : Do not store with the following product types:  
 Strong oxidizing agents  
 Self-reactive substances and mixtures  
 Organic peroxides  
 Flammable solids  
 Pyrophoric liquids  
 Pyrophoric solids  
 Self-heating substances and mixtures  
 Substances and mixtures which in contact with water emit flammable gases  
 Explosives  
 Gases  
 Very acutely toxic substances and mixtures

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Solvent naphtha (petroleum), light aromatic	64742-95-6	TWA	500 ppm 2,000 mg/m <sup>3</sup>	OSHA Z-1
		TWA	200 mg/m <sup>3</sup> (total hydrocarbon vapor)	ACGIH
Cottonseed oil	8001-29-4	TWA (mist - total)	10 mg/m <sup>3</sup>	NIOSH REL
		TWA (mist - respirable)	5 mg/m <sup>3</sup>	NIOSH REL
Deltamethrin (ISO)	52918-63-5	TWA	15 µg/m <sup>3</sup> (OEB 3)	Internal
Further information: DSEN, Skin				
		Wipe limit	150 µg/100 cm <sup>2</sup>	Internal
2,6-Di-tert-butyl-p-cresol	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m <sup>3</sup>	ACGIH
		TWA	10 mg/m <sup>3</sup>	NIOSH REL

**Engineering measures** : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).  
 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.

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Use explosion-proof electrical, ventilating and lighting equipment.

### Personal protective equipment

- Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Hand protection
- Material : Chemical-resistant gloves
- Remarks : Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.
- Eye 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 and body 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.
- 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.

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### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Color : yellow
- Odor : No data available

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Odor Threshold : No data available

pH : 4 - 5

Melting point/freezing point : < 23 °F / < -5 °C

Initial boiling point and boiling range : No data available

Flash point : 104 °F / 40 °C

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : Not applicable

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : No data available

Density : 0.917 - 0.919 g/cm<sup>3</sup>

Solubility(ies)  
Water solubility : partly miscible

Partition coefficient: n-octanol/water : Not applicable

Autoignition temperature : No data available

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.

Molecular weight : No data available

Particle size : Not applicable



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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.  
Chemical stability : Stable under normal conditions.  
Possibility of hazardous reactions : Flammable liquid and vapor.  
Vapors may form explosive mixture with air.  
Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.  
Incompatible materials : Oxidizing agents  
Hazardous decomposition products : No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity : Acute toxicity estimate: 2,593 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 31.4 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

**Components:****Solvent naphtha (petroleum), light aromatic:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.61 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

**Cottonseed oil:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**

Acute oral toxicity : LD50 (Rat): 4,445 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402

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Remarks: Based on data from similar materials

**4-Nonylphenol, branched, ethoxylated:**

Acute oral toxicity : LD50 (Rat): &gt; 2,000 mg/kg

**Deltamethrin (ISO):**

Acute oral toxicity : LD50 (Rat): 66.7 mg/kg

LD50 (Rat): 9 - 139 mg/kg

LD50 (Mouse): 19 - 34 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.8 mg/l  
Exposure time: 2 h  
Test atmosphere: dust/mistAcute dermal toxicity : LD50 (Rabbit): 2,000 mg/kg  
LD50 (Rat): > 800 mg/kgAcute toxicity (other routes of administration) : LD50 (Rat): 2.5 mg/kg  
Application Route: Intravenous  
LD50 (Mouse): 10 mg/kg  
Application Route: Intraperitoneal**2,6-Di-tert-butyl-p-cresol:**Acute oral toxicity : LD50 (Rat): > 6,000 mg/kg  
Method: OECD Test Guideline 401Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402  
Assessment: The substance or mixture has no acute dermal toxicity**Skin corrosion/irritation**

Causes skin irritation.

**Components:****Solvent naphtha (petroleum), light aromatic:**Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation**4-Nonylphenol, branched, ethoxylated:**

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Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : Based on data from similar materials

**Deltamethrin (ISO):**

Species : Rabbit  
Result : No skin irritation

**2,6-Di-tert-butyl-p-cresol:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : Based on data from similar materials

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Components:****Solvent naphtha (petroleum), light aromatic:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**

Species : Rabbit  
Result : Irreversible effects on the eye  
Method : OECD Test Guideline 405

**4-Nonylphenol, branched, ethoxylated:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405  
Remarks : Based on data from similar materials

**Deltamethrin (ISO):**

Species : Rabbit  
Result : Moderate eye irritation

**2,6-Di-tert-butyl-p-cresol:**

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405  
Remarks : Based on data from similar materials

**Respiratory or skin sensitization****Skin sensitization**

May cause an allergic skin reaction.

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**Respiratory sensitization**

Not classified based on available information.

**Components:****Solvent naphtha (petroleum), light aromatic:**

Test Type                                : Buehler Test  
Routes of exposure                        : Skin contact  
Species                                    : Guinea pig  
Result                                      : negative

**Cottonseed oil:**

Test Type                                : Human repeat insult patch test (HRIPT)  
Routes of exposure                        : Skin contact  
Result                                      : negative  
Remarks                                    : Based on data from similar materials

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**

Test Type                                : Magnusson-Kligman-Test  
Routes of exposure                        : Skin contact  
Species                                    : Guinea pig  
Method                                     : OECD Test Guideline 406  
Remarks                                    : Based on data from similar materials

**4-Nonylphenol, branched, ethoxylated:**

Test Type                                : Maximization Test  
Routes of exposure                        : Skin contact  
Species                                    : Guinea pig  
Result                                      : negative  
Remarks                                    : Based on data from similar materials

**Deltamethrin (ISO):**

Test Type                                : Maximization Test  
Routes of exposure                        : Dermal  
Species                                    : Guinea pig  
Result                                      : negative

Test Type                                : Human repeat insult patch test (HRIPT)  
Routes of exposure                        : Dermal  
Species                                    : Humans  
Result                                      : positive

**2,6-Di-tert-butyl-p-cresol:**

Test Type                                : Human repeat insult patch test (HRIPT)  
Routes of exposure                        : Skin contact  
Species                                    : Humans  
Result                                      : negative

**Germ cell mutagenicity**

May cause genetic defects.

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**Components:****Solvent naphtha (petroleum), light aromatic:**

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative
- Test Type: In vitro mammalian cell gene mutation test  
Result: positive
- Genotoxicity in vivo : Test Type: Sister chromatid exchange analysis in spermatogonia  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: positive
- Germ cell mutagenicity - Assessment : Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

**Cottonseed oil:**

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

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: Directive 67/548/EEC, Annex V, B.13/14.  
Result: negative  
Remarks: Based on data from similar materials

**4-Nonylphenol, branched, ethoxylated:**

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative  
Remarks: Based on data from similar materials
- Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative  
Remarks: Based on data from similar materials
- Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative  
Remarks: Based on data from similar materials

**Deltamethrin (ISO):**

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative
- Test Type: DNA Repair  
Test system: Escherichia coli  
Result: negative

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Test Type: Chromosomal aberration  
 Test system: Chinese hamster ovary cells  
 Result: negative

Test Type: In vitro mammalian cell gene mutation test  
 Test system: Chinese hamster lung cells  
 Concentration: LOAEL: 20 mg/kg  
 Result: positive

Genotoxicity in vivo : Test Type: Micronucleus test  
 Species: Mouse  
 Application Route: Oral  
 Result: negative

Test Type: dominant lethal test  
 Species: Mouse  
 Application Route: Oral  
 Result: negative

Test Type: sister chromatid exchange assay  
 Species: Mouse  
 Cell type: Bone marrow  
 Application Route: Oral  
 Result: negative

### 2,6-Di-tert-butyl-p-cresol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
 Result: negative

Test Type: In vitro mammalian cell gene mutation test  
 Result: negative

Test Type: Chromosome aberration test in vitro  
 Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
 Species: Rat  
 Application Route: Ingestion  
 Result: negative

### Carcinogenicity

May cause cancer.

### Components:

#### **Solvent naphtha (petroleum), light aromatic:**

Species : Mouse  
 Application Route : Skin contact  
 Exposure time : 2 Years  
 Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

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### 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

### 2,6-Di-tert-butyl-p-cresol:

Species : Rat  
 Application Route : Ingestion  
 Exposure time : 22 Months  
 Result : negative

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### Reproductive toxicity

Suspected of damaging fertility or the unborn child.

### Components:

#### Solvent naphtha (petroleum), light aromatic:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
 Species: Rat  
 Application Route: inhalation (vapor)  
 Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
 Species: Rat  
 Application Route: inhalation (vapor)  
 Result: negative

#### 4-Nonylphenol, branched, ethoxylated:

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Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

### Deltamethrin (ISO):

Effects on fertility : Test Type: Three-generation reproduction toxicity study  
 Species: Rat  
 Application Route: oral (feed)  
 Early Embryonic Development: NOAEL: 50 mg/kg body weight  
 Symptoms: No effects on fertility., Embryo-fetal toxicity.  
 Remarks: Significant toxicity observed in testing

Test Type: Two-generation reproduction toxicity study  
 Species: Rat  
 Application Route: Oral  
 Early Embryonic Development: LOAEL: 84 - 149 mg/kg body weight  
 Symptoms: No effects on fertility., Embryo-fetal toxicity.

Test Type: Fertility  
 Species: Rat, male  
 Application Route: Oral  
 Fertility: LOAEL: 1 mg/kg body weight  
 Symptoms: Effects on fertility.  
 Target Organs: Testes

Effects on fetal development : Test Type: Development  
 Species: Mouse  
 Application Route: oral (gavage)  
 Developmental Toxicity: LOAEL: 1 mg/kg body weight  
 Result: Skeletal malformations.  
 Remarks: Maternal toxicity observed.

Test Type: Development  
 Species: Rat, female  
 Developmental Toxicity: NOAEL: 10 mg/kg body weight  
 Symptoms: No effects on fetal development.

Test Type: Development  
 Species: Rabbit, female  
 Application Route: oral (gavage)  
 Developmental Toxicity: NOAEL: 16 mg/kg body weight  
 Symptoms: No effects on fetal development.

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

### 2,6-Di-tert-butyl-p-cresol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Rat  
 Application Route: Ingestion  
 Result: negative

Effects on fetal development : Test Type: Embryo-fetal development



**Deltamethrin (2.5%) Formulation**

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Species: Rat  
Application Route: Ingestion  
Result: negative

**STOT-single exposure**

May cause drowsiness or dizziness.

**Components:****Solvent naphtha (petroleum), light aromatic:**

Assessment : May cause drowsiness or dizziness.

**Deltamethrin (ISO):**

Assessment : May cause respiratory irritation.

**STOT-repeated exposure**

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

Causes damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

**Components:****Deltamethrin (ISO):**

Routes of exposure : Ingestion  
Target Organs : Central nervous system, Immune system  
Assessment : Causes damage to organs through prolonged or repeated exposure.

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

**2,6-Di-tert-butyl-p-cresol:**

Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

**Repeated dose toxicity****Components:****Solvent naphtha (petroleum), light aromatic:**

Species : Rat  
LOAEL : 500 mg/kg  
Application Route : Ingestion  
Exposure time : 28 Days

**4-Nonylphenol, branched, ethoxylated:**

Species : Rat  
LOAEL : 150 mg/kg  
Application Route : Ingestion

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Exposure time : 90 Days  
 Method : OPPTS 870.3100  
 Remarks : Based on data from similar materials

### 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, Diarrhea, 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

### 2,6-Di-tert-butyl-p-cresol:

Species : Rat  
 NOAEL : 25 mg/kg  
 Application Route : Ingestion  
 Exposure time : 22 Months

### Aspiration toxicity

May be fatal if swallowed and enters airways.

### Product:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

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### Components:

#### **Solvent naphtha (petroleum), light aromatic:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

#### **Experience with human exposure**

### 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

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## SECTION 12. ECOLOGICAL INFORMATION

### **Ecotoxicity**

#### Components:

#### **Solvent naphtha (petroleum), light aromatic:**

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 8.2 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 4.5 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
		NOELR (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR (Daphnia magna (Water flea)): 2.6 mg/l Exposure time: 21 d Test substance: Water Accommodated Fraction Method: OECD Test Guideline 211

#### **Cottonseed oil:**

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Toxicity to fish : LC50: > 100 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : LC50: > 100 mg/l  
Exposure time: 48 h  
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50: > 100 mg/l  
Exposure time: 72 h  
Remarks: Based on data from similar materials

NOEC: > 10 - 100 mg/l  
Exposure time: 72 h  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 0.1 - 1 mg/l  
Exposure time: 21 d  
Remarks: Based on data from similar materials

### Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Toxicity to fish : LC50: > 1 - < 10 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): > 0.1 - 1 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 0.1 - 1 mg/l  
Exposure time: 72 d  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 1 mg/l  
Exposure time: 21 d  
Remarks: Based on data from similar materials

### 4-Nonylphenol, branched, ethoxylated:

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 8.2 mg/l  
Exposure time: 96 h

### Deltamethrin (ISO):

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- Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.00048 mg/l  
Exposure time: 96 h
- LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Mysidopsis bahia (opossum shrimp)): 0.0037 µg/l  
Exposure time: 48 h
- EC50 (Daphnia magna (Water flea)): 0.0035 mg/l  
Exposure time: 48 h
- LC50 (Gammarus fasciatus (freshwater shrimp)): 0.0003 µg/l  
Exposure time: 96 h
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): > 9.1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: No toxicity at the limit of solubility.
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.000022 mg/l  
Exposure time: 36 d
- NOEC (Pimephales promelas (fathead minnow)): 0.000017 mg/l  
Exposure time: 260 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.0041 µg/l  
Exposure time: 21 d
- 2,6-Di-tert-butyl-p-cresol:**
- Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0.57 mg/l  
Exposure time: 96 h  
Method: Directive 67/548/EEC, Annex V, C.1.
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.48 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0.24 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Japanese medaka)): 0.053 mg/l  
Exposure time: 30 d

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Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.316 mg/l  
Exposure time: 21 d

Toxicity to microorganisms : EC50: > 10,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

**Persistence and degradability****Components:****Solvent naphtha (petroleum), light aromatic:**

Biodegradability : Result: Inherently biodegradable.  
Biodegradation: 94 %  
Exposure time: 25 d

**Cottonseed oil:**

Biodegradability : Result: Readily biodegradable.  
Remarks: Based on data from similar materials

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 100 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

**4-Nonylphenol, branched, ethoxylated:**

Biodegradability : Result: Not readily biodegradable.

**Deltamethrin (ISO):**

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

**2,6-Di-tert-butyl-p-cresol:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 4.5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

**Bioaccumulative potential****Components:****Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**

Partition coefficient: n-octanol/water : log Pow: 2.89

**4-Nonylphenol, branched, ethoxylated:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): < 100

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Remarks: Based on data from similar materials

### Deltamethrin (ISO):

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)  
Bioconcentration factor (BCF): 1,800

Partition coefficient: n-octanol/water : log Pow: 4.6

### 2,6-Di-tert-butyl-p-cresol:

Bioaccumulation : Species: *Cyprinus carpio* (Carp)  
Bioconcentration factor (BCF): 330 - 1,800

Partition coefficient: n-octanol/water : log Pow: 5.1

### Mobility in soil

### Components:

#### Deltamethrin (ISO):

Distribution among environmental compartments : log Koc: 7.2

#### Other adverse effects

No data available

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Dispose of in accordance with local regulations.  
Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.  
If not otherwise specified: Dispose of as unused product.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### UNRTDG

UN number : UN 3295  
Proper shipping name : HYDROCARBONS, LIQUID, N.O.S.  
Class : 3  
Packing group : III  
Labels : 3

#### IATA-DGR

UN/ID No. : UN 3295  
Proper shipping name : Hydrocarbons, liquid, n.o.s.  
Class : 3

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Packing group	:	III
Labels	:	Flammable Liquids
Packing instruction (cargo aircraft)	:	366
Packing instruction (passenger aircraft)	:	355

### IMDG-Code

UN number	:	UN 3295
Proper shipping name	:	HYDROCARBONS, LIQUID, N.O.S. (Deltamethrin (ISO), 2,6-Di-tert-butyl-p-cresol)
Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-D
Marine pollutant	:	yes

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

Not applicable for product as supplied.

### Domestic regulation

#### 49 CFR

UN/ID/NA number	:	UN 3295
Proper shipping name	:	Hydrocarbons, liquid, n.o.s.
Class	:	3
Packing group	:	III
Labels	:	FLAMMABLE LIQUID
ERG Code	:	128
Marine pollutant	:	yes(Deltamethrin (ISO), 2,6-Di-tert-butyl-p-cresol)
Remarks	:	THE COMBUSTIBLE LIQUID EXCEPTION MAY BE USED FOR PACKAGES <119 GAL.

### 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.

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## SECTION 15. REGULATORY INFORMATION

### CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

### SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

<b>SARA 311/312 Hazards</b>	:	Flammable (gases, aerosols, liquids, or solids) Respiratory or skin sensitization Germ cell mutagenicity Carcinogenicity Reproductive toxicity Specific target organ toxicity (single or repeated exposure) Aspiration hazard
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Skin corrosion or irritation  
 Serious eye damage or eye irritation

### SARA 313

: The following components are subject to reporting levels established by SARA Title III, Section 313:

4-Nonylphenol, branched, ethoxylated	127087-87-0	>= 1 - < 5 %
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### US State Regulations

#### Pennsylvania Right To Know

Solvent naphtha (petroleum), light aromatic	64742-95-6
Cottonseed oil	8001-29-4
Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts	Not Assigned
Polyethylene glycol castor oil	61791-12-6
4-Nonylphenol, branched, ethoxylated	127087-87-0
2,6-Di-tert-butyl-p-cresol	128-37-0
Acetic acid	64-19-7

#### California List of Hazardous Substances

2,6-Di-tert-butyl-p-cresol	128-37-0
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#### California Permissible Exposure Limits for Chemical Contaminants

Cottonseed oil	8001-29-4
2,6-Di-tert-butyl-p-cresol	128-37-0

#### The ingredients of this product are reported in the following inventories:

AICS	: not determined
DSL	: not determined
IECSC	: not determined

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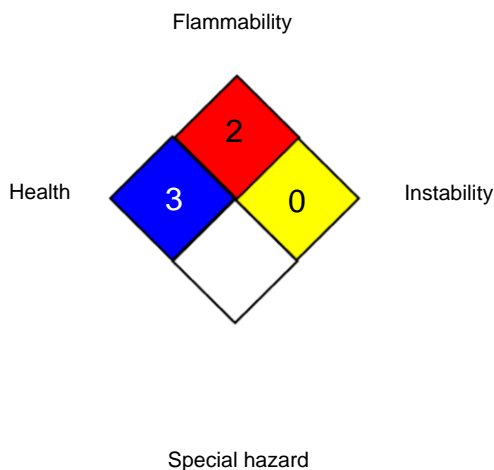
## SECTION 16. OTHER INFORMATION

### Further information

## Deltamethrin (2.5%) Formulation

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### NFPA 704:



### HMIS® IV:

<b>HEALTH</b>	*	<b>3</b>
<b>FLAMMABILITY</b>		<b>2</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "\*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

### Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA Z-1 / TWA	:	8-hour time weighted average

AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); EC<sub>x</sub> - Concentration associated with x% response; EHS - Extremely Hazardous Substance; EL<sub>x</sub> - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErC<sub>x</sub> - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; 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; IC<sub>50</sub> - 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; LC<sub>50</sub> - Lethal Concentration to 50 % of a test population; LD<sub>50</sub> - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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)

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tative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

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

Revision Date : 10/01/2022

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.

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