SAFETY DATA SHEET
according to the Hazardous Products Regulations

Deltamethrin (3%) Formulation

SECTION 1. IDENTIFICATION

Product name : Deltamethrin (3%) Formulation
Other means of identification : No data available

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations
Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Skin irritation : Category 2
Serious eye damage : Category 1
Skin sensitization : Sub-category 1A
Reproductive toxicity : Category 2
Specific target organ toxicity - single exposure : Category 3
Specific target organ toxicity - repeated exposure (Oral) : Category 1 (Central nervous system, Immune system)
Specific target organ toxicity - repeated exposure (Inhalation) : Category 1 (Central nervous system)
Specific target organ toxicity - repeated exposure : Category 2 (Auditory system)
Aspiration hazard : Category 1

GHS label elements
Deltamethrin (3%) Formulation

Hazard pictograms: 
- Flammable liquid and vapor (Flame)
- Human health hazard symbol
- Other hazards symbol
- Combustible solid symbol

Signal Word: Danger

Hazard Statements:
- H226 Flammable liquid and vapor.
- H302 Harmful if swallowed.
- 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.
- H335 May cause respiratory irritation.
- H361fd Suspected of damaging fertility. Suspected of damaging 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.
- H373 May cause damage to organs (Auditory system) through prolonged or repeated exposure.

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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- 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.
- 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.
- 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:
P405 Store locked up.

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

Other hazards
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). Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common Name/Synonym</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>Benzene, dimethyl-</td>
<td>1330-20-7</td>
<td>81.7</td>
</tr>
<tr>
<td>Calcium dodecylbenzenesulphonate</td>
<td>Benzenesulfonic acid, dodecyl, calcium salt (2:1)</td>
<td>26264-06-2</td>
<td>9</td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated</td>
<td>Poly(oxy-1,2-ethanediyl), .alpha.- (nonylphenyl)-.omega.-hydroxy-</td>
<td>9016-45-9</td>
<td>5</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>No data available</td>
<td>52918-63-5</td>
<td>3.3</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-</td>
<td>128-37-0</td>
<td>1.78</td>
</tr>
</tbody>
</table>

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
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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.

If swallowed: If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control center immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. Suspected of damaging fertility. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure if swallowed. Causes damage to organs through prolonged or repeated exposure if inhaled. May cause damage to organs through prolonged or repeated exposure. This product contains a pyrethroid. 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).

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES


Unsuitable extinguishing media: High volume water jet.

Specific hazards during firefighting: Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Sulfur compounds

**Specific extinguishing methods**: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Use water spray to cool unopened containers.
- Remove undamaged containers from fire area if it is safe to do so.
- Evacuate area.

**Special protective equipment for fire-fighters**: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions, protective equipment and emergency procedures**: Remove all sources of ignition.
- Use personal protective equipment.
- 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.

**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.
Already sensitized individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitzers.
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.
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.

Materials to avoid:
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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>TWA</td>
<td>100 ppm 434 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm 651 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWAEV</td>
<td>100 ppm 434 mg/m³</td>
<td>CA QC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEV</td>
<td>150 ppm 651 mg/m³</td>
<td>CA QC OEL</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>STEL</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>100 ppm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td>150 ppm</td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td></td>
<td>20 ppm</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>15 µg/m³ (OEL 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Internal</td>
</tr>
<tr>
<td>Further information: DSEN, Skin wipe limit</td>
<td>100 µg/100 cm²</td>
<td>Internal</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>TWA (Vapour and inhalable aerosols)</th>
<th>TWA (inhalable fraction and vapour)</th>
<th>TWA (Inhalable fraction and vapor)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 mg/m³</td>
<td>2 mg/m³</td>
<td>2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>CA BC OEL</td>
<td>CA QC OEL</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>Methylhippuric acids</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>1.5 g/g creatinine</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

### Engineering measures

- Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless 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.
- Use explosion-proof electrical, ventilating and lighting equipment.

### Personal protective equipment

- **Respiratory protection**: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
- **Filter type**: Combined particulates and organic vapor type
- **Hand protection**:
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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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: yellow
Odor: No data available
Odor Threshold: No data available
pH: 4 - 5
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: 45 - 51 °C
Evaporation rate: No data available
Flammability (solid, gas): Not applicable
### Flammability (liquids)
- No data available

### 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
- No data available

### Solubility(ies)
- **Water solubility**: soluble

### 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.
SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity
Harmful if swallowed.

Product:
Acute oral toxicity: Acute toxicity estimate: 993.39 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:
Xylene:
Acute oral toxicity: LD50 (Rat): 3,523 mg/kg

Acute inhalation toxicity: LC50 (Rat): 27.571 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity: LD50 (Rabbit): > 4,200 mg/kg

Calcium dodecylbenzenesulphonate:
Acute oral toxicity: LD50 (Rat): > 500 - 2,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

Nonylphenol, ethoxylated:
Acute oral toxicity: LD50 (Rat): 500 - 2,000 mg/kg

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

Acute dermal toxicity: LD50 (Rabbit): 2,000 mg/kg
LD50 (Rat): > 800 mg/kg

Acute 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 401

Acute 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:

Xylene:
Species: Rabbit
Result: Skin irritation

Calcium dodecylbenzenesulphonate:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation
Remarks: Based on data from similar materials

Nonylphenol, ethoxylated:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

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:**

**Xylene:**
Species : Rabbit
Result : Irritation to eyes, reversing within 21 days

**Calcium dodecylbenzenesulphonate:**
Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

**Nonylphenol, ethoxylated:**
Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405

**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.

**Respiratory sensitization**
Not classified based on available information.

**Components:**

**Xylene:**
Test Type : Local lymph node assay (LLNA)
Routes of exposure : Skin contact
Species : Mouse
Calcium dodecylbenzenesulphonate:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative
Remarks: Based on data from similar materials

Nonylphenol, 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
Not classified based on available information.

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

Test Type: Chromosome aberration test in vitro
Result: negative

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

Test Type: In vitro sister chromatid exchange assay in mammalian cells

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

Test Type: Chromosome aberration test in vitro
Result: negative

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

Test Type: In vitro sister chromatid exchange assay in mammalian cells
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Result: negative

Genotoxicity in vivo  
Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Species: Mouse  
Application Route: Skin contact  
Result: negative

Calcium dodecylbenzenesulphonate:

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: In vitro mammalian cell gene mutation test  
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

Genotoxicity in vivo  
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

Nonylphenol, ethoxylated:

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

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
Not classified based on available information.

Components:

Xylene:
Species: Rat
Application Route: Ingestion
Exposure time: 103 weeks
Result: negative

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
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<table>
<thead>
<tr>
<th>Application Route</th>
<th>oral (feed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**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

**Reproductive toxicity**

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

## Components:

### Xylene:

**Effects on fertility**

- **Test Type**: One-generation reproduction toxicity study
- **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

### Calcium dodecylbenzenesulphonate:

**Effects on fertility**

- **Test Type**: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
- **Species**: Rat
- **Application Route**: Ingestion
- **Method**: OECD Test Guideline 422
- **Result**: negative
- **Remarks**: Based on data from similar materials

**Effects on fetal development**

- **Test Type**: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
- **Species**: Rat
- **Application Route**: Ingestion
- **Method**: OECD Test Guideline 422
- **Result**: negative
- **Remarks**: Based on data from similar materials

### 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  
Species: Rat  
Application Route: Ingestion  
Result: negative
STOT-single exposure
May cause respiratory irritation.

Components:

Xylene:
Assessment : May cause respiratory irritation.

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.
May cause damage to organs (Auditory system) through prolonged or repeated exposure.

Components:

Xylene:
Routes of exposure : inhalation (vapor)
Target Organs : Auditory system
Assessment : Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

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

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:**

#### Xylene:
- **Species:** Rat
- **LOAEL:** > 0.2 - 1 mg/l
- **Application Route:** Inhalation (vapor)
- **Exposure time:** 13 Weeks
- **Remarks:** Based on data from similar materials

#### Calcium dodecylbenzenesulphonate:
- **Species:** Rat
- **LOAEL:** > 200 mg/kg
- **Application Route:** Ingestion
- **Exposure time:** 6 - 7 Weeks
- **Method:** OECD Test Guideline 422
- **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

#### Deltamethrin (ISO): Inhalation
- **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

#### Deltamethrin (ISO): Oral
- **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
Deltamethrin (3%) Formulation

**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.

**Components:**

**Xylene:**  
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

### SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**Xylene:**  
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l  
Exposure time: 96 h
### Toxicity to daphnia and other aquatic invertebrates
- **EC$_{50}$ (Daphnia magna (Water flea)): > 1 - 10 mg/l**
- **Exposure time:** 24 h
- **Method:** OECD Test Guideline 202
- **Remarks:** Based on data from similar materials

### Toxicity to algae/aquatic plants
- **EC$_{50}$ (Skeletonema costatum (marine diatom)): 10 mg/l**
- **Exposure time:** 72 h

### Toxicity to fish (Chronic toxicity)
- **NOEC (Danio rerio (zebra fish)): > 0.1 - < 1 mg/l**
- **Exposure time:** 35 d
- **Method:** OECD Test Guideline 210
- **Remarks:** Based on data from similar materials

### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
- **EL$_{10}$ (Daphnia magna (Water flea)): > 1 - 10 mg/l**
- **Exposure time:** 21 d
- **Method:** OECD Test Guideline 211
- **Remarks:** Based on data from similar materials

### Toxicity to microorganisms
- **NOEC: > 100 mg/l**
- **Exposure time:** 3 h
- **Method:** OECD Test Guideline 209
- **Remarks:** Based on data from similar materials

### Calcium dodecybenzenesulphonate:
- **Toxicity to fish**
  - **LC$_{50}$ (Leuciscus idus (Golden orfe)): > 1 - 10 mg/l**
  - **Exposure time:** 96 h
  - **Remarks:** Based on data from similar materials

- **Toxicity to daphnia and other aquatic invertebrates**
  - **EC$_{50}$ (Daphnia magna (Water flea)): > 1 - 10 mg/l**
  - **Exposure time:** 48 h
  - **Remarks:** Based on data from similar materials

- **Toxicity to algae/aquatic plants**
  - **ErC$_{50}$ (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l**
  - **Exposure time:** 72 h
  - **Remarks:** Based on data from similar materials

  - **NOEC (Pseudokirchneriella subcapitata (green algae)): > 0.1 - 1 mg/l**
  - **Exposure time:** 72 h
  - **Remarks:** Based on data from similar materials

- **Toxicity to fish (Chronic toxicity)**
  - **NOEC (Pimephales promelas (fathead minnow)): > 0.1 - 1 mg/l**
  - **Exposure time:** 28 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

- **Toxicity to microorganisms**
  - **EC$_{50}$ (activated sludge): > 100 mg/l**
**Nonylphenol, ethoxylated:**

<table>
<thead>
<tr>
<th>Category</th>
<th>Endpoint</th>
<th>Concentration</th>
<th>Exposure Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC₅₀ (Pimephales promelas (fathead minnow))</td>
<td>&gt; 0.1 - 1 mg/l</td>
<td>96 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>EC₅₀ (Ceriodaphnia dubia (water flea))</td>
<td>&gt; 0.1 - 1 mg/l</td>
<td>48 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>ErC₅₀ (Selenastrum capricornutum (green algae))</td>
<td>&gt; 1 - 10 mg/l</td>
<td>72 h</td>
<td>Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td></td>
<td>EC₁₀ (Selenastrum capricornutum (green algae))</td>
<td>&gt; 1 mg/l</td>
<td>72 h</td>
<td>Method: OECD Test Guideline 201</td>
</tr>
</tbody>
</table>

**Deltamethrin (ISO):**

<table>
<thead>
<tr>
<th>Category</th>
<th>Endpoint</th>
<th>Concentration</th>
<th>Exposure Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC₅₀ (Cyprinodon variegatus (sheepshead minnow))</td>
<td>0.00048 mg/l</td>
<td>96 h</td>
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<tr>
<td></td>
<td>LC₅₀ (Oncorhynchus mykiss (rainbow trout))</td>
<td>0.00039 mg/l</td>
<td>96 h</td>
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<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>EC₅₀ (Mysidopsis bahia (opossum shrimp))</td>
<td>0.0037 μg/l</td>
<td>48 h</td>
<td></td>
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<tr>
<td></td>
<td>EC₅₀ (Daphnia magna (Water flea))</td>
<td>0.0035 mg/l</td>
<td>48 h</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC₅₀ (Gammarus fasciatus (freshwater shrimp))</td>
<td>0.0003 μg/l</td>
<td>96 h</td>
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<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>EC₅₀ (Pseudokirchneriella subcapitata (green algae))</td>
<td>&gt; 9.1 mg/l</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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

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
  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:

Xylene:

Biodegradability: Result: Readily biodegradable.
Biodegradation: > 70 %
Exposure time: 28 d
Calcium dodecylbenzenesulphonate:
Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

Nonylphenol, ethoxylated:
Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

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:

Xylene:
Partition coefficient: n-octanol/water : log Pow: 3.16
Remarks: Calculation

Calcium dodecylbenzenesulphonate:
Bioaccumulation : Bioconcentration factor (BCF): < 500
Remarks: Based on data from similar materials
Partition coefficient: n-octanol/water : log Pow: 4.77
Remarks: Calculation

Nonylphenol, ethoxylated:
Partition coefficient: n-octanol/water : log Pow: 4.48

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : Do not dispose of waste into sewer.
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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(Xylene)
Class : 3
Packing group : III
Labels : 3
Environmentally hazardous : no

IATA-DGR
UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s.
(Xylene)
Class : 3
Packing group : III
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355

IMDG-Code

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SECTION 15. REGULATORY INFORMATION

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

AICS : not determined

DSL : not determined

IECSC : not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
CA BC OEL : Canada. British Columbia OEL
CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA : 8-hour, time-weighted average
CA AB OEL / TWA : 8-hour Occupational exposure limit
Deltamethrin (3%) Formulation

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<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue: 09/30/2023</th>
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<td>1.7</td>
<td>11/03/2023</td>
<td>7730560-00008</td>
<td>Date of first issue: 01/13/2021</td>
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</table>

CA AB OEL / STEL : 15-minute occupational exposure limit
CA BC OEL / TWA : 8-hour time weighted average
CA BC OEL / STEL : short-term exposure limit
CA QC OEL / TWA EV : Time-weighted average exposure value
CA QC OEL / STEV : Short-term exposure value

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; EMG - 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; IECS - Inventory of Existing Chemicals in China; IMDG - International Maritime Dangerous Goods; ISO - International Organisation for Standardization; KEI - 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


Revision Date : 11/03/2023

Date format : mm/dd/yyyy

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.

CA / Z8