1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Deltamethrin (3%) Formulation

Manufacturer or supplier's details
Company : MSD
Address : Briahnager - Off Pune Nagar Road
          Wagholi - Pune - India 412 207
Telephone : +1-908-740-4000
Emergency telephone number : +1-908-423-6000
E-mail address : EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use
Recommended use : Veterinary product

2. HAZARDS IDENTIFICATION

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989

Classification
Highly flammable liquids

GHS Classification
Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 5
Acute toxicity (Dermal) : Category 5
Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 1
Skin sensitisation : Category 1
Reproductive toxicity : Category 2
Specific target organ toxicity - single exposure : Category 3
Specific target organ toxicity - repeated exposure : Category 2
Aspiration hazard : Category 1
Short-term (acute) aquatic hazard: Category 1

Long-term (chronic) aquatic hazard: Category 1

GHS label elements
Hazard pictograms:

Signal word: Danger

Hazard statements:
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H313 + H333 May be harmful in contact with skin or if inhaled.
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.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:
Prevention:
P203 Obtain, read and follow all safety instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
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 should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P316 IF SWALLOWED: Get emergency medical help immediately.
P303 + P361 + P353 + P317 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Get medical help.
P304 + P317 IF INHALED: Get medical help.
P304 + P340 + P319 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell.
P305 + P354 + P338 + P317 IF IN EYES: Immediately rinse...
with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical help. P318 IF exposed or concerned, get medical advice. P331 Do NOT induce vomiting. P333 + P317 If skin irritation or rash occurs: Get medical help. P362 + P364 Take off contaminated clothing and wash it before reuse. P391 Collect spillage.

Storage: P405 Store locked up.

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

Other hazards which do not result in classification
Vapours may form explosive mixture with air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Xylene</td>
<td>1330-20-7</td>
<td>&gt;= 70 - &lt; 90</td>
</tr>
<tr>
<td></td>
<td>Calcium dodecylbenzenesulphonate</td>
<td>26264-06-2</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td>Nonylphenol, ethoxylated</td>
<td>9016-45-9</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>&gt;= 3 - &lt; 5</td>
</tr>
<tr>
<td></td>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>&gt;= 1 - &lt; 2.5</td>
</tr>
</tbody>
</table>

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.

If swallowed: If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control centre 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.
- May be harmful in contact with skin or if inhaled.
- 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.
- May cause damage to organs through prolonged or repeated exposure.

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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media:
- Water spray
- Alcohol-resistant foam
- Carbon dioxide (CO2)
- Dry chemical

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.
- Vapours may form explosive mixtures with air.
- Exposure to combustion products may be a hazard to health.

Hazardous combustion products:
- Carbon oxides
- Nitrogen oxides (NOx)
- Bromine compounds
- Metal oxides
- Sulphur 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 firefighters:
- In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

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/vapours/mists with a water spray jet.
- For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked 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.

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 vapours.
- 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 sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers.
- 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 labelled 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:
  - Self-reactive substances and mixtures
  - Organic peroxides
  - Oxidizing agents
  - Flammable gases
  - Pyrophoric liquids
  - Pyrophoric solids
  - Self-heating substances and mixtures
  - Poisonous gases
  - Explosives

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components 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, 435 mg/m³</td>
<td>IN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm, 655 mg/m³</td>
<td>IN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>15 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Further information:
- DSEN, Skin Wipe limit: 150 µg/100 cm²; Internal

2,6-Di-tert-butyl-p-cresol
- TWA (Inhalable fraction and vapor): 2 mg/m³; ACGIH

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., 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.

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 vapour type

**Hand protection**
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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**
liquid

**Colour**
yellow

**Odour**
No data available

**Odour Threshold**
No data available

**pH**
4 - 5

**Melting point/freezing point**
No data available
SAFETY DATA SHEET

Deltamethrin (3%) Formulation

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

Vapour pressure: No data available

Relative vapour 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

Auto-ignition 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

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions:
   Flammable liquid and vapour.
   Vapours 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.

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity
Harmful if swallowed.
May be harmful in contact with skin or if inhaled.

Product:
- Acute oral toxicity: Acute toxicity estimate: 993.39 mg/kg
  Method: Calculation method
- Acute inhalation toxicity: Acute toxicity estimate: 24.61 mg/l
  Exposure time: 4 h
  Test atmosphere: vapour
  Method: Calculation method
- Acute dermal toxicity: Acute toxicity estimate: 3,060 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: vapour
- Acute dermal toxicity: LD50 (Rabbit): > 4,200 mg/kg

Calcium dodecybenzenesulphonate:
- 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
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
Method : OECD Test Guideline 405
Result : Irreversible effects on the eye
Remarks : Based on data from similar materials

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

Deltamethrin (ISO):
Species : Rabbit
Result : Moderate eye irritation

2,6-Di-tert-butyl-p-cresol:
Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation
Remarks : Based on data from similar materials

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

Components:

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

**Calcium dodecylbenzenesulphonate:**  
Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative  
Remarks: Based on data from similar materials  

**Nonylphenol, ethoxylated:**  
Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Result: negative  
Remarks: Based on data from similar materials  

**Deltamethrin (ISO):**  
Test Type: Maximisation Test  
Exposure routes: Dermal  
Species: Guinea pig  
Result: negative  

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

**2,6-Di-tert-butyl-p-cresol:**  
Test Type: Human repeat insult patch test (HRIPT)  
Exposure routes: 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 mam-
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  
Application Route: oral (feed)
Deltamethrin (3%) Formulation

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

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 (vapour)
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
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 foetal 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-foetal 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-foetal 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 foetal development : Test Type: Development
Species: Mouse
Application Route: oral (gavage)
Developmental Toxicity: NOAEL: 10 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 foetal development

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

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

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 foetal development : Test Type: Embryo-foetal 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
May cause damage to organs through prolonged or repeated exposure.

Components:

Xylene:
Exposure routes: Inhalation (vapour)
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):
Exposure routes: Ingestion
Target Organs: Central nervous system, Immune system
Assessment: Causes damage to organs through prolonged or repeated exposure.

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

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 (vapour)
Exposure time: 13 Weeks
Remarks: Based on data from similar materials

Species: Rat
LOAEL: 150 mg/kg
### Application Route
- **Calcium dodecylbenzenesulphonate:**
  - Species: Rat
  - LOAEL: > 200 mg/kg
  - Application Route: Ingestion
  - Exposure time: 90 Days
  - Method: OECD Test Guideline 422
  - Remarks: Based on data from similar materials

### Calcium dodecylbenzenesulphonate:
- Species: Rabbit
- NOAEL: > 100 mg/kg
- Application Route: Skin contact
- Exposure time: 28 Days
- Method: OECD Test Guideline 410
- 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: hypereexcitability

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

### Deltamethrin (ISO):
- Species: Rat
- NOAEL: 14 mg/kg
- LOAEL: 54 mg/kg
- Application Route: Oral
- Exposure time: 91 d
- Target Organs: Nervous system

### Deltamethrin (ISO):
- Species: Mouse
- LOAEL: 6 mg/kg
- Application Route: Oral
- Exposure time: 12 Weeks
- Target Organs: Immune system

---

**SAFETY DATA SHEET**

**Deltamethrin (3%) Formulation**

**Version**: 1.1  
**Revision Date**: 12.10.2021  
**SDS Number**: 7730565-00002  
**Date of last issue**: 13.01.2021  
**Date of first issue**: 13.01.2021
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

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: EC50 (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: EC50 (Skeletonema costatum (marine diatom)): 10 mg/l
Exposure time: 72 h
Toxicity to microorganisms: NOEC: > 100 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials
<table>
<thead>
<tr>
<th>Substance</th>
<th>Endpoint</th>
<th>Parameter</th>
<th>Concentration</th>
<th>Exposure Time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Calcium dodecylbenzenesulphonate:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tox to fish</td>
<td>LC50 (Leuciscus idus (Golden orfe))</td>
<td></td>
<td>&gt; 1 - 10 mg/l</td>
<td>96 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Tox to daphnia and other</td>
<td>EC50 (Daphnia magna (Water flea))</td>
<td></td>
<td>&gt; 1 - 10 mg/l</td>
<td>48 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>aquatic invertebrates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tox to algae/aquatic plants</td>
<td>ErC50 (Pseudokirchneriella subcapitata (green algae))</td>
<td>&gt; 10 - 100 mg/l</td>
<td></td>
<td>72 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td></td>
<td>NOEC (Pseudokirchneriella subcapitata (green algae))</td>
<td>&gt; 0.1 - 1 mg/l</td>
<td></td>
<td>72 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tox to microorganisms</td>
<td>EC50 (activated sludge)</td>
<td>&gt; 100 mg/l</td>
<td></td>
<td>3 h</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tox to fish</td>
<td>NOEC: &gt; 0.1 - 1 mg/l</td>
<td></td>
<td></td>
<td>28 d</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Tox to daphnia and other</td>
<td>NOEC: &gt; 1 mg/l</td>
<td></td>
<td></td>
<td>21 d</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>aquatic invertebrates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonylphenol, ethoxylated:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tox to daphnia and other</td>
<td>EC50 (Daphnia sp. (water flea))</td>
<td>1.82 mg/l</td>
<td></td>
<td>48 h</td>
<td></td>
</tr>
<tr>
<td>aquatic invertebrates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tox to algae/aquatic plants</td>
<td>EC50 (Pseudokirchneriella subcapitata (green algae))</td>
<td>20 mg/l</td>
<td></td>
<td>48 h</td>
<td></td>
</tr>
</tbody>
</table>
### Delteamethrin (3%) Formulation

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>12.10.2021</td>
<td>7730565-00002</td>
<td>13.01.2021</td>
<td>13.01.2021</td>
</tr>
</tbody>
</table>

#### Delteamethrin (ISO):

**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 |
|----------------|---------------------------------------------------------------------|
|                | NOEC: 0.000022 mg/l | Exposure time: 36 d |
|                | Species: Pimephales promelas (fathead minnow)                        |
|                | NOEC: 0.000017 mg/l | Exposure time: 260 d |
|                | Species: Pimephales promelas (fathead minnow)                        |
|                | NOEC: 0.0041 µg/l | Exposure time: 21 d |
|                | Species: Daphnia magna (Water flea)                                  |

**M-Factor (Acute aquatic toxicity)**

|                | 1,000,000                                                           |

**Toxicity to fish (Chronic toxicity)**

|                | NOEC: 0.000022 mg/l | Exposure time: 36 d |
|----------------|-------------------------------------------------------|
|                | Species: Pimephales promelas (fathead minnow)                        |
|                | NOEC: 0.000017 mg/l | Exposure time: 260 d |
|                | Species: Pimephales promelas (fathead minnow)                        |

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**

|                | NOEC: 0.0041 µg/l | Exposure time: 21 d |
|----------------|-------------------------------------------------------|
|                | Species: Daphnia magna (Water flea)                                  |

**M-Factor (Chronic aquatic toxicity)**

|                | 1,000,000                                                           |

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

**Toxicity to fish**

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

**Toxicity to daphnia and other aquatic invertebrates**

|                | EC50 (Daphnia magna (Water flea)): 0.48 mg/l | Exposure time: 48 h |
|----------------|------------------------------------------------|
|                | 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                                       |
SAFETY DATA SHEET

Deltamethrin (3%) Formulation

Version 1.1  Revision Date: 12.10.2021  SDS Number: 7730565-00002  Date of last issue: 13.01.2021

Date of first issue: 13.01.2021

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity) : 1

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

Toxicity to fish (Chronic toxicity) : NOEC: 0.053 mg/l
Exposure time: 30 d
Species: Oryzias latipes (Japanese medaka)
Method: OECD Test Guideline 210

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

M-Factor (Chronic aquatic toxicity) : 1

Persistence and degradability

Components:

Xylene:
Biodegradability : Result: Readily biodegradable.
Biodegradation: > 70 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

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

Nonylphenol, ethoxylated:
Biodegradability : Result: Readily biodegradable.
Biodegradation: 97 %
Exposure time: 30 d

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

Components:

Nonylphenol, ethoxylated:
Results of PBT and vPvB assessment : This substance is considered to be persistent, bioaccumulating and toxic (PBT).
This substance is considered to be very persistent and very
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.

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

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
UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S. (Xylene, deltamethrin (ISO), 2,6-Di-tert-butyl-p-cresol)
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : yes

Transport in bulk according to IMO instruments
Not applicable for product as supplied.

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet.
SAFETY DATA SHEET

Deltamethrin (3%) Formulation

Version 1.1
Revision Date: 12.10.2021
SDS Number: 7730565-00002
Date of last issue: 13.01.2021
Date of first issue: 13.01.2021

Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

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

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

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

16. OTHER INFORMATION

Further information

Date format: dd.mm.yyyy

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
IN OEL : India. Permissible levels of certain chemical substances in work environment.

ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
IN OEL / TWA : Time-Weighted Average Concentration (TWA) (8 hrs.)
IN OEL / STEL : Short-term exposure Limit STEL (15 min)

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect
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.

IN / EN