SAFETY DATA SHEET

Deltamethrin (with Xylene) Formulation

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Deltamethrin (with Xylene) Formulation

Manufacturer or supplier’s details

Company: MSD
Address: Briahnager - Off Pune Nagar Road
          Wagholi - Pune - India 412 207
Telephone: 908-740-4000
Emergency telephone number: 1-908-423-6000
E-mail address: EHSDATASTEWARD@msd.com
Telefax: 908-735-1496

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 4
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2A
Skin sensitisation: Category 1
Germ cell mutagenicity: Category 1B
Carcinogenicity: Category 1B
Reproductive toxicity: Category 2
Specific target organ toxicity - single exposure: Category 3
Specific target organ toxicity - multiple exposure: Category 2
SAFETY DATA SHEET

Deltamethrin (with Xylene) Formulation

Version: 3.2  Revision Date: 09/13/2019  SDS Number: 2972473-00005  Date of last issue: 24.04.2019
Date of first issue: 02.07.2018

repeated exposure

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 + H332 Harmful if swallowed or if inhaled.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H340 May cause genetic defects.
H350 May cause cancer.
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:
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 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 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
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 POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P331 Do NOT induce vomiting.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
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

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylbenzene</td>
<td>100-41-4</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>4-Nonylphenol, branched, ethoxylated</td>
<td>127087-87-0</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>&gt;= 2.5 - &lt; 5</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>&gt;= 0.25 - &lt; 1</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>&gt;= 0.1 - &lt; 1</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. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. 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.

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 or if inhaled. 
May be fatal if swallowed and enters airways. 
Causes skin irritation. 
May cause an allergic skin reaction. 
Causes serious eye irritation. 
May cause respiratory irritation. 
May cause genetic defects. 
May cause cancer. 
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

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 and personal protective equipment recommendations.

Environmental precautions:
Discharge into the environment must be avoided.
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.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Advice on safe handling:
Do not get on skin or clothing.
Do not breathe vapours or spray mist.
Do not swallow.
Do not get in eyes.
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 and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the...
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>Ethylbenzene</td>
<td>100-41-4</td>
<td>TWA</td>
<td>20 ppm</td>
<td>ACGIH</td>
</tr>
<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>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>15 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>further information: DSEN, Skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>150 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>TWA (Inhalable fraction and vapor)</td>
<td>2 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>TWA</td>
<td>300 ppm, 900 mg/m³</td>
<td>IN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>500 ppm, 1,500 mg/m³</td>
<td>IN OEL</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>TWA</td>
<td>200 ppm, 260 mg/m³</td>
<td>IN OEL</td>
</tr>
<tr>
<td>further information: Potential contribution to the overall exposure by the cutaneous route including mucous membranes and eye.</td>
<td></td>
<td>STEL</td>
<td>250 ppm, 310 mg/m³</td>
<td>IN OEL</td>
</tr>
</tbody>
</table>

Further information: Potential contribution to the overall exposure by the cutaneous route including mucous membranes and eye.
SAFETY DATA SHEET

Deltamethrin (with Xylene) Formulation

<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>Ethylbenzene</td>
<td>100-41-4</td>
<td>Sum of mandelic acid and phenyl glyoxylic acid</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>0.15 g/g creatinine</td>
<td>ACGIH BEI</td>
</tr>
<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>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Methanol</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>15 mg/l</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.

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:
- 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. 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>clear yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>38 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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 or if inhaled.

Product:
Acute oral toxicity: Acute toxicity estimate: 997.09 mg/kg
Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: 18.89 mg/l
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Exposure time: 4 h  Test atmosphere: vapour  Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: > 5,000 mg/kg  Method: Calculation method

Components:

Ethylbenzene:
Acute oral toxicity: LD50 (Rat): 3,500 mg/kg
Acute inhalation toxicity: LC50 (Rat): 17.8 mg/l  Exposure time: 4 h  Test atmosphere: vapour
Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

Xylene:
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

4-Nonylphenol, branched, ethoxylated:
Acute oral toxicity: LD50 (Mouse): 4,290 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
SAFETY DATA SHEET

Deltamethrin (with Xylene) Formulation

Version
3.2
Revision Date: 09/13/2019
SDS Number: 2972473-00005
Date of last issue: 24.04.2019
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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

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

Methanol:
Acute oral toxicity : Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgement
Acute inhalation toxicity : Acute toxicity estimate: 3 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
Acute dermal toxicity : Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgement

Skin corrosion/irritation
Causes skin irritation.

Components:

Xylene:
Species : Rabbit
Result : 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
Solvent naphtha (petroleum), light aromatic:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

Methanol:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:

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

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

Solvent naphtha (petroleum), light aromatic:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

Methanol:
Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

Components:

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

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

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

**2,6-Di-tert-butyl-p-cresol:**
Test Type : Human repeat insult patch test (HRIPT)
Exposure routes : Skin contact
Species : Humans
Result : negative

**Solvent naphtha (petroleum), light aromatic:**
Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

**Methanol:**
Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

**Germ cell mutagenicity**
May cause genetic defects.

**Components:**

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

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Genotoxicity in vivo : Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Mouse
Application Route: Inhalation
Method: OECD Test Guideline 486
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
Result: negative

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

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

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

Methanol:
Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative

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

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative

Carcinogenicity
May cause cancer.

Components:
Ethylbenzene:  
Species : Rat
Application Route: inhalation (vapour)
Exposure time: 104 weeks
Result: positive
Remarks: The mechanism or mode of action may not be relevant in humans.

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)
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

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

Methanol:
Species: Mouse
Application Route: inhalation (vapour)
Exposure time: 18 Months
Reproductive toxicity
Suspected of damaging fertility. Suspected of damaging the unborn child.

Components:

Ethylbenzene:
Effects on fertility:
- Test Type: Two-generation reproduction toxicity study
  Species: Rat
  Application Route: inhalation (vapour)
  Method: OECD Test Guideline 416
  Result: negative

Effects on foetal development:
- Test Type: Embryo-foetal development
  Species: Rat
  Application Route: Inhalation
  Method: OECD Test Guideline 414
  Result: negative

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

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:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Developmental Toxicity</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development</td>
<td>Mouse</td>
<td>oral (gavage)</td>
<td>LOAEL: 1 mg/kg body weight</td>
<td>Skeletal malformations</td>
<td>Maternal toxicity observed.</td>
</tr>
<tr>
<td>Development</td>
<td>Rat</td>
<td>oral (gavage)</td>
<td>NOAEL: 10 mg/kg body weight</td>
<td>No effects on foetal development</td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>Rabbit</td>
<td>oral (gavage)</td>
<td>NOAEL: 16 mg/kg body weight</td>
<td>No effects on foetal development</td>
<td></td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>Ingestion</td>
<td>negative</td>
</tr>
</tbody>
</table>

Effects on foetal development:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embryo-foetal development</td>
<td>Rat</td>
<td>Ingestion</td>
<td>negative</td>
</tr>
</tbody>
</table>

Solvent naphtha (petroleum), light aromatic:

Effects on fertility:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproduction/Developmental toxicity screening test</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>negative</td>
</tr>
</tbody>
</table>

Effects on foetal development:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embryo-foetal development</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>negative</td>
</tr>
</tbody>
</table>

Methanol:

Effects on fertility:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertility/early embryonic development</td>
<td>Mouse</td>
<td>Ingestion</td>
<td>negative</td>
</tr>
</tbody>
</table>

Effects on foetal development:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embryo-foetal development</td>
<td>Mouse</td>
<td></td>
</tr>
</tbody>
</table>
Application Route: Ingestion
Result: positive
Remarks: The effects were seen only at maternally toxic doses.

STOT - single exposure
May cause respiratory irritation.

Components:

Xylene:
Assessment: May cause respiratory irritation.

Deltamethrin (ISO):
Assessment: May cause respiratory irritation.

Solvent naphtha (petroleum), light aromatic:
Assessment: May cause drowsiness or dizziness.

Methanol:
Target Organs: Eye, Central nervous system
Assessment: Causes damage to organs.

STOT - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

Components:

Ethylbenzene:
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.

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.

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:

Ethylbenzene:
Species: Rat
LOAEL: 0.868 mg/l
Application Route: inhalation (vapour)
Exposure time: 13 Weeks

Species: Rat
NOAEL: 75 mg/kg
LOAEL: 250 mg/kg
Application Route: Ingestion
Method: OECD Test Guideline 408

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: Ingestion
Exposure time: 90 Days

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)
Test atmosphere: dust/mist
Exposure time: 2 wk / 5 d/wk / 6 h/d
Symptoms: Local irritation, respiratory tract irritation

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

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

Species: Mouse
NOAEL: 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

Solvent naphtha (petroleum), light aromatic:
Species: Rat
NOAEL: 500 mg/kg
Application Route: Ingestion
Exposure time: 28 Days

Methanol:
Species: Rat
NOAEL: 1.06 mg/l
Application Route: inhalation (vapour)
Exposure time: 90 Days

Aspiration toxicity
May be fatal if swallowed and enters airways.

Components:

Ethylbenzene:
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.

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.
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

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Ethylbenzene:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 4.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 1.8 - 2.4 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants: EC50 (Pseudokirchneriella subcapitata (green algae)): 3.6 mg/l
Exposure time: 96 h
NOEC (Pseudokirchneriella subcapitata (green algae)): 3.4 mg/l
Exposure time: 96 h

Toxicity to microorganisms: EC50 (Nitrosomonas sp.): 96 mg/l
Exposure time: 24 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.96 mg/l
Exposure time: 7 d
Species: Ceriodaphnia dubia (water flea)

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

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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): EL10: > 1 - 10 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

4-Nonylphenol, branched, ethoxylated:
Toxicity to fish: LC50: 44 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50: 68 mg/l
Exposure time: 48 h

Deltamethrin (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 (Mysisopsis 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

M-Factor (Acute aquatic toxicity): 1,000,000
### Toxicity to Fish (Chronic Toxicity)

<table>
<thead>
<tr>
<th>Species</th>
<th>NOEC</th>
<th>Exposure Time</th>
<th>Method</th>
</tr>
</thead>
</table>

### Toxicity to Daphnia and Other Aquatic Invertebrates (Chronic Toxicity)

<table>
<thead>
<tr>
<th>Species</th>
<th>NOEC</th>
<th>Exposure Time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daphnia magna (Water flea)</td>
<td>0.0041 µg/l</td>
<td>21 d</td>
<td>OECD Test Guideline 202</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Toxicity to Fish (Chronic Toxicity)</th>
<th>LC50 (Danio rerio (zebra fish)): &gt; 0.57 mg/l</th>
<th>Exposure time: 96 h</th>
<th>Method: Directive 67/548/EEC, Annex V, C.1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to Daphnia magna (Water flea)</td>
<td>EC50: 0.48 mg/l</td>
<td>Exposure time: 48 h</td>
<td>OECD Test Guideline 202</td>
</tr>
<tr>
<td>Toxicity to Algae/Aquatic Plants</td>
<td>ErC50 (Pseudokirchneriella subcapitata (green algae)): &gt; 0.24 mg/l</td>
<td>Exposure time: 72 h</td>
<td>OECD Test Guideline 201</td>
</tr>
<tr>
<td>NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l</td>
<td>Exposure time: 72 h</td>
<td>OECD Test Guideline 201</td>
<td></td>
</tr>
</tbody>
</table>

### M-Factor (Chronic Aquatic Toxicity)

- 1,000,000

### Toxicity to Microorganisms

| EC50: > 10,000 mg/l | Exposure time: 3 h | OECD Test Guideline 209 |

### Toxicity to Fish (Chronic Toxicity)

| NOEC: 0.053 mg/l | Exposure time: 30 d | Species: Oryzias latipes (Japanese medaka) |

### 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

---

**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: 2.6 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 211

Methanol:
Toxicity to fish:
LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:
EC50 (Pseudokirchneriella subcapitata (green algae)): 22,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to microorganisms:
IC50: > 1,000 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity):
NOEC: 15,800 mg/l
Exposure time: 200 h
Species: Oryzias latipes (Orange-red killifish)

Persistence and degradability

Components:

Ethylbenzene:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d
Xylene:
Biodegradability: Result: Readily biodegradable.
   Biodegradation: > 70%
   Exposure time: 28 d
   Method: OECD Test Guideline 301F
   Remarks: Based on data from similar materials

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

Solvent naphtha (petroleum), light aromatic:
Biodegradability: Result: Inherently biodegradable.
   Biodegradation: 94%
   Exposure time: 25 d

Methanol:
Biodegradability: Result: Readily biodegradable.
   Biodegradation: 95%
   Exposure time: 20 d

Bioaccumulative potential

Components:

Ethylbenzene:
Partition coefficient: n-octanol/water: log Pow: 3.6

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

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:
## 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
<table>
<thead>
<tr>
<th>UN number</th>
<th>FLAMMABLE LIQUID, TOXIC, N.O.S. (Ethylbenzene, Xylene)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>3</td>
</tr>
<tr>
<td>Subsidiary risk</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Labels</td>
<td>3 (6.1)</td>
</tr>
</tbody>
</table>

### IATA-DGR
<table>
<thead>
<tr>
<th>UN/ID No.</th>
<th>Flammable liquid, toxic, n.o.s. (Ethylbenzene, Xylene)</th>
</tr>
</thead>
</table>
SAFETY DATA SHEET

Deltamethrin (with Xylene) Formulation

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue: 24.04.2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>09/13/2019</td>
<td>2972473-00005</td>
<td>Date of first issue: 02.07.2018</td>
</tr>
</tbody>
</table>

Class : 3
Subsidiary risk : 6.1
Packing group : III
Labels : Flammable Liquids, Toxic
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355

**IMDG-Code**

UN number : UN 1992
Proper shipping name : FLAMMABLE LIQUID, TOXIC, N.O.S. (Ethylbenzene, Xylene, Deltamethrin (ISO))
Class : 3
Subsidiary risk : 6.1
Packing group : III
Labels : 3 (6.1)
EmS Code : F-E, S-D
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. 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)
Deltamethrin (with Xylene) Formulation

<table>
<thead>
<tr>
<th>Version</th>
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</tr>
</tbody>
</table>

**ACGIH BEI**
ACGIH - Biological Exposure Indices (BEI)

**IN OEL**
India. Permissible levels of certain chemical substances in the workplace.

**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)

AICS - Australian Inventory of Chemical Substances; 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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

IN / EN