SAFETY DATA SHEET

Deltamethrin (2.5%) Formulation

Section 1: Identification

Product name : Deltamethrin (2.5%) Formulation

Manufacturer or supplier's details

Company : MSD
Address : 33 Whakatiki Street - Private Bag 908
Upper Hutt - New Zealand
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

Section 2: Hazard identification

GHS Classification

Flammable liquids : Category 3
Skin corrosion/irritation : Category 2
Serious eye damage/eye irritation : Category 1
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 - repeated exposure (Oral) : Category 2 (Central nervous system, Immune system)
Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Central nervous system)
Aspiration hazard : Category 1

GHS label elements
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Hazard pictograms:

Signal word: Danger

Hazard statements:
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

Precautionary statements:

Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
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 + 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/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
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P331 Do NOT induce vomiting.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
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.

Section 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
</table>

**Components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>&gt;= 30 - &lt; 60</td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts</td>
<td>Not Assigned</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td>4-Nonylphenol, branched, ethoxylated</td>
<td>127087-87-0</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>&lt; 10</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 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
May be fatal if swallowed and enters airways.
Causes skin irritation.
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Version 2.7  Revision Date: 27.08.2021  SDS Number: 2656120-00009  Date of last issue: 09.04.2021  Date of first issue: 29.03.2018

May cause an allergic skin reaction.
Causes serious eye damage.
May cause drowsiness or dizziness.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure if swallowed.
May cause damage to organs through prolonged or repeated exposure if inhaled.

Protection of first-aiders:
First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician:
Treat symptomatically and supportively.

Section 5: Fire-fighting measures

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

Unsuitable extinguishing media:
- High volume water jet

Specific hazards during fire-fighting:
- Do not use a solid water stream as it may scatter and spread fire.
- 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
- Sulphur oxides
- Metal oxides

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.

Hazchem Code:
- 3Y

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
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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.

Section 7: Handling and storage

Technical measures:
- See Engineering measures under EXPOSURE CONTROLS/PERSOAL 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.
- 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.

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,
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Deltamethrin (2.5%) Formulation

Version 2.7  Revision Date: 27.08.2021  SDS Number: 2656120-00009  Date of last issue: 09.04.2021  Date of first issue: 29.03.2018

appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

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

Section 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>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>WES-TWA</td>
<td>300 ppm 890 mg/m³</td>
<td>NZ OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WES- STEL</td>
<td>500 ppm 1,480 mg/m³</td>
<td>NZ OEL</td>
</tr>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>200 mg/m³ (total hydrocarbon vapor)</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Further information:
- DSEN, Skin Wipe limit 150 µg/100 cm² Internal
- Skin sensitisers
- TWA (Inhalable fraction and vapor) 2 mg/m³ ACGIH

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 vapour type
- **Hand protection**: Combined particulates and organic vapour type
- **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.

**Section 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**: < -5 °C
- **Initial boiling point and boiling range**: No data available
- **Flash point**: 40 °C
- **Evaporation rate**: No data available
- **Flammability (solid, gas)**: Not applicable
- **Flammability (liquids)**: Not applicable
### Section 10: Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
<th>Not classified as a reactivity hazard.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td></td>
<td>Vapours may form explosive mixture with air. Can react with strong oxidizing agents.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Conditions to avoid</th>
<th>Heat, flames and sparks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompatible materials</td>
<td>Oxidizing agents</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>No hazardous decomposition products are known.</td>
</tr>
</tbody>
</table>

### Section 11: Toxicological information

<table>
<thead>
<tr>
<th>Exposure routes</th>
<th>Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skin contact</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
</tr>
<tr>
<td></td>
<td>Eye contact</td>
</tr>
</tbody>
</table>
Acute toxicity
Not classified based on available information.

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

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:
Solvent naphtha (petroleum), light aromatic:
Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

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

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

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Acute oral toxicity : LD50 (Rat): 4,445 mg/kg

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

4-Nonylphenol, branched, ethoxylated:
Acute oral toxicity : LD50 (Rat): > 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:

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

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

4-Nonylphenol, branched, ethoxylated:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Remarks: Based on data from similar materials

deltamethrin (ISO):
Species: Rabbit
Result: No skin irritation

2,6-Di-tert-butyl-p-cresol:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Remarks: Based on data from similar materials

Serious eye damage/eye irritation
Causes serious eye damage.

Components:

Solvent naphtha (petroleum), light aromatic:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405

4-Nonylphenol, branched, ethoxylated:
Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

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

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

Respiratory or skin sensitisation
Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

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

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Test Type : Magnusson-Kligman-Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Remarks : Based on data from similar materials

4-Nonylphenol, branched, 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

: Human repeat insult patch test (HRIPT)
: Dermal
: Humans
: positive

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

Chronic toxicity

Germ cell mutagenicity
May cause genetic defects.

Components:

Solvent naphtha (petroleum), light aromatic:
Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
                      : Result: negative
                      : Test Type: In vitro mammalian cell gene mutation test
                      : Result: positive

Genotoxicity in vivo : Test Type: Sister chromatid exchange analysis in spermatogonia
                      : Species: Mouse
                      : Application Route: Intraperitoneal injection
                      : Result: positive

Germ cell mutagenicity - Assessment : Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
                      : Result: negative
                      : Remarks: Based on data from similar materials

4-Nonylphenol, branched, ethoxylated:
Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
                      : Method: OECD Test Guideline 471
                      : Result: negative
                      : Remarks: Based on data from similar materials
Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

deltamethrin (ISO):
Genotoxicity in vitro:
  Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative
  Test Type: DNA Repair
  Test system: Escherichia coli
  Result: negative
  Test Type: Chromosomal aberration
  Test system: Chinese hamster ovary cells
  Result: negative
  Test Type: In vitro mammalian cell gene mutation test
  Test system: Chinese hamster lung cells
  Concentration: LOAEL: 20 mg/kg
  Result: positive

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

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

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

2,6-Di-tert-butyl-p-cresol:
Genotoxicity in vitro:
  Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative

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

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

Carcinogenicity
May cause cancer.

Components:

Solvent naphtha (petroleum), light aromatic:
Species: Mouse
Application Route: Skin contact
Exposure time: 2 Years
Result: positive

Carcinogenicity - Assessment: Sufficient evidence of carcinogenicity in animal experiments

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

Reproductive toxicity
Suspected of damaging fertility or the unborn child.

Components:

Solvent naphtha (petroleum), light aromatic:
Effects on fertility: Test Type: Reproduction/Developmental toxicity screening test
### Species: Rat
- **Application Route:** inhalation (vapour)
- **Result:** negative

### Effects on foetal development

**Species:** Rat  
**Application Route:** inhalation (vapour)  
**Result:** negative

### 4-Nonylphenol, branched, ethoxylated:

**Reproductive toxicity - Assessment**

Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

### Deltamethrin (ISO):

#### Effects on fertility

**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:** 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

- **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 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 drowsiness or dizziness.

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

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

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

Components:

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

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

2,6-Di-tert-butyl-p-cresol:
Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.
Repeated dose toxicity

Components:

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

4-Nonylphenol, branched, ethoxylated:
Species : Rat
LOAEL : 150 mg/kg
Application Route : Ingestion
Exposure time : 90 Days
Method : OPPTS 870.3100
Remarks : Based on data from similar materials

Deltamethrin (ISO):
Species : Rat, male and female
NOAEL : 1 mg/kg
LOAEL : 2.5 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Nervous system
Symptoms : hyperexcitability
Species : Rat
LOAEL : 3 mg/m3
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 wk / 5 d/wk / 6 h/d
Symptoms : Local irritation, respiratory tract irritation
Species : Dog
NOAEL : 0.1 mg/kg
LOAEL : 1 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Nervous system
Symptoms : Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Salivation
Species : Rat
NOAEL : 14 mg/kg
LOAEL : 54 mg/kg
Application Route : Oral
Exposure time : 91 d
Target Organs : Nervous system
Species : Mouse
LOAEL : 6 mg/kg
Application Route : Oral
Exposure time : 12 Weeks
Target Organs : Immune system
Symptoms: immune system effects

2,6-Di-tert-butyl-p-cresol:
Species: Rat
NOAEL: 25 mg/kg
Application Route: Ingestion
Exposure time: 22 Months

Aspiration toxicity
May be fatal if swallowed and enters airways.

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

Components:
Solvent naphtha (petroleum), light aromatic:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure
Components:
deltamethrin (ISO):
Inhalation: Symptoms: respiratory tract irritation, Dizziness, Sweating, Headache, Nausea, Vomiting, anorexia, Fatigue, tingling, Palpitation, Blurred vision, muscle twitching
Skin contact: Symptoms: Skin irritation, Erythema, pruritis, Headache, Nausea, Vomiting, Dizziness, tingling, Sweating, muscle twitching, Blurred vision, Fatigue, anorexia, Allergic reactions
Ingestion: Symptoms: muscle pain, Small pupils

Section 12: Ecological information

Ecotoxicity
Components:
Solvent naphtha (petroleum), light aromatic:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 8.2 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Toxicity to daphnia and other aquatic invertebrates: EL50 (Daphnia magna (Water flea)): 4.5 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants: EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
**SAFETY DATA SHEET**

Deltamethrin (2.5%) Formulation

<table>
<thead>
<tr>
<th>Method: OECD Test Guideline 201</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOELR (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l</td>
</tr>
<tr>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td>Test substance: Water Accommodated Fraction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxidity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOELR (Daphnia magna (Water flea)): 2.6 mg/l</td>
</tr>
<tr>
<td>Exposure time: 21 d</td>
</tr>
<tr>
<td>Test substance: Water Accommodated Fraction</td>
</tr>
<tr>
<td>Method: OECD Test Guideline 201</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Toxidity to fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50: &gt; 1 - &lt; 10 mg/l</td>
</tr>
<tr>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td>Method: OECD Test Guideline 203</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxidity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 (Daphnia magna (Water flea)): &gt; 1 - 10 mg/l</td>
</tr>
<tr>
<td>Exposure time: 48 h</td>
</tr>
<tr>
<td>Method: OECD Test Guideline 202</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxidity to algae/aquatic plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>ErC50 (Pseudokirchneriella subcapitata (green algae)): &gt; 10 - 100 mg/l</td>
</tr>
<tr>
<td>Exposure time: 96 h</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxidity to fish (Chronic toxicity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEC (Oncorhynchus mykiss (rainbow trout)): &gt; 0.1 - 1 mg/l</td>
</tr>
<tr>
<td>Exposure time: 72 d</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toxidity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOEC (Daphnia magna (Water flea)): &gt; 1 mg/l</td>
</tr>
<tr>
<td>Exposure time: 21 d</td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Toxidity to fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 (Oryzias latipes (Orange-red killifish)): 8.2 mg/l</td>
</tr>
<tr>
<td>Exposure time: 96 h</td>
</tr>
</tbody>
</table>

**deltamethrin (ISO):**

<table>
<thead>
<tr>
<th>Toxidity to fish</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.00048 mg/l</td>
</tr>
<tr>
<td>Exposure time: 96 h</td>
</tr>
</tbody>
</table>

| LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l |
| Exposure time: 96 h |
Toxicity to daphnia and other aquatic invertebrates:

- EC50 (Mysisidopsis bahia (opossum shrimp)): 0.0037 µg/l
  Exposure time: 48 h
- EC50 (Daphnia magna (Water flea)): 0.0035 mg/l
  Exposure time: 48 h
- LC50 (Gammarus fasciatus (freshwater shrimp)): 0.0003 µg/l
  Exposure time: 96 h

Toxicity to algae/aquatic plants:

- EC50 (Pseudokirchneriella subcapitata (green algae)): > 9.1 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201
  Remarks: No toxicity at the limit of solubility

Toxicity to fish (Chronic toxicity):

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

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

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

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

Toxicity to fish:

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

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
## Persistence and degradability

### Components:

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

**Benzencesulfonic acid, C10-13-alkyl derivs., calcium salts:**
- **Biodegradability:** Result: Readily biodegradable. 
  Biodegradation: 100 % 
  Exposure time: 28 d 
  Method: OECD Test Guideline 301B

**4-Nonylphenol, branched, ethoxylated:**
- **Biodegradability:** Result: Not readily biodegradable. 

**Deltamethrin (ISO):**
- **Stability in water:** Hydrolysis: 0 % (30 d)

**2,6-Di-tert-butyl-p-cresol:**
- **Biodegradability:** Result: Not readily biodegradable. 
  Biodegradation: 4.5 % 
  Exposure time: 28 d 
  Method: OECD Test Guideline 301C

## Bioaccumulative potential

### Components:

**Benzencesulfonic acid, C10-13-alkyl derivs., calcium salts:**
- **Partition coefficient:** 
  \[ \log \text{Pow} = 2.89 \]

**4-Nonylphenol, branched, ethoxylated:**
- **Bioaccumulation:** Species: Fish 
  Bioconcentration factor (BCF): < 100 
  Remarks: Based on data from similar materials

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

**Partition coefficient:** 
- \[ \log \text{Pow} = 4.6 \]

**2,6-Di-tert-butyl-p-cresol:**
- **Bioaccumulation:** Species: Cyprinus carpio (Carp)
SAFETY DATA SHEET

Deltamethrin (2.5%) Formulation

Bioconcentration factor (BCF): 330 - 1,800

Partition coefficient: n-octanol/water

Mobility in soil

Components:

deltamethrin (ISO):
Distribution among environmental compartments

Other adverse effects
No data available

Section 13: Disposal considerations

Disposal methods
Waste from residues
Contaminated packaging

Dispose of in accordance with local regulations.
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 3295
Proper shipping name: HYDROCARBONS, LIQUID, N.O.S.
Class: 3
Packing group: III
Labels

IATA-DGR
UN/ID No.: UN 3295
Proper shipping name: Hydrocarbons, liquid, n.o.s.
Class: 3
Packing group: III
Labels: Flammable Liquids
Packing instruction (cargo aircraft): 366
Packing instruction (passenger aircraft): 355

IMDG-Code
UN number: UN 3295
Proper shipping name: HYDROCARBONS, LIQUID, N.O.S.
(deltamethrin (ISO), 2,6-Di-tert-butyl-p-cresol)
Class: 3
Packing group: III
Deltamethrin (2.5%) Formulation

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

NZS 5433
UN number : UN 3295
Proper shipping name : HYDROCARBONS, LIQUID, N.O.S.
Class : 3
Packing group : III
Labels : 3
Hazchem Code : 3Y

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.

Section 15: Regulatory information

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

HSNO Approval Number
HSR100759 Veterinary Medicines Non dispersive Open System Application Group Standard 2017

HSW Controls
Certified handler certificate not required.
Tracking hazardous substance not required.
Refer to the Health and Safety at Work (Hazardous Substances) Regulations 2017, for further information.

The components of this product are reported in the following inventories:
AICS : not determined
DSL : not determined
IECSC : not determined

Section 16: Other information

Further information
Date format : dd.mm.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.