SAFETY DATA SHEET

Amitraz (5%) Formulation

1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Amitraz (5%) Formulation

Supplier’s company name, address and phone number
Company name of supplier : MSD
Address : Kumagaya, Saitama Prefecture, Xicheng 810 MSD Co., Ltd.
Menuma factory
Telephone : 048-588-8411
E-mail address : EHSDATASTEWARD@msd.com
Emergency telephone number : 1-908-423-6000

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

2. HAZARDS IDENTIFICATION

GHS classification of chemical product

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 1</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure</td>
<td>Category 3</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure</td>
<td>Category 2 (Kidney, Heart, Gastrointestinal tract, Lymph nodes)</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>Category 1</td>
</tr>
<tr>
<td>Short-term (acute) aquatic hazard</td>
<td>Category 1</td>
</tr>
<tr>
<td>Long-term (chronic) aquatic hazard</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

GHS label elements
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Version 4.0  Revision Date: 2020/03/23  SDS Number: 1829223-00007  Date of last issue: 2019/09/13
Date of first issue: 2017/07/11

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.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H360F May damage fertility.
H373 May cause damage to organs (Kidney, Heart, Gastrointestinal tract, Lymph nodes) 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.
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.
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 + 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.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
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P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

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
Important symptoms and outlines of the emergency assumed: 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>
<th>ENCS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>&gt;= 70 - &lt; 80</td>
<td></td>
</tr>
<tr>
<td>4-Nonylphenol, branched, ethoxylated</td>
<td>127087-87-0</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Amitraz (ISO)</td>
<td>33089-61-1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>bis(2,6-diisopropylphenyl)carbodiimide</td>
<td>2162-74-5</td>
<td>&gt;= 1 - &lt; 2.5</td>
<td>3-142</td>
</tr>
</tbody>
</table>

Alternative CAS Numbers for some regions

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Alternative CAS Number(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-Nonylphenol, branched, ethoxylated</td>
<td>68412-54-4</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.
To be read naturally:

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:
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye damage.
May cause drowsiness or dizziness.
May cause genetic defects.
May cause cancer.
May damage fertility.
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)

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

Handling
- 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.
  - 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 environment.
- Avoidance of contact: Oxidizing agents
- 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.

**Storage**

**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:
  - Oxidizing solids
  - Oxidizing liquids

**Packaging material**
- Unsuitable material: None known.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Threshold limit value and permissible exposure limits for each component in the work environment**

<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>TWA</td>
<td>200 mg/m³ (total hydrocarbon vapor)</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Amitraz (ISO)</td>
<td>33089-61-1</td>
<td>TWA</td>
<td>20 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>200 µg/100 cm²</td>
<td>Internal</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
- Chemical-resistant gloves
- Consider double gloving. Take note that the product is flammable, which may impact the selection of hand 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic, aromatic, hydrocarbon-like</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point, initial boiling point and boiling range</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>Lower explosion limit and upper explosion limit / flammability limit</td>
<td></td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>7 % (V)</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>0.8 % (V)</td>
</tr>
<tr>
<td>Flash point</td>
<td>53 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>emulsifiable</td>
</tr>
<tr>
<td>Water solubility</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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octanol/water
Vapour pressure : No data available
Density and / or relative density
Relative density : No data available
Density : No data available
Relative vapour density : No data available
Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : Not applicable
Particle characteristics
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
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
Not classified based on available information.

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

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

4-Nonylphenol, branched, ethoxylated:
- Acute oral toxicity:
  - LD50 (Rat): 1,310 mg/kg
- Acute dermal toxicity:
  - LD50 (Rabbit): > 2,000 mg/kg

Amitraz (ISO):
- Acute oral toxicity:
  - LD50 (Rat): > 400 mg/kg
  - LD50 (Mouse): > 1,085 mg/kg
  - LD50 (Guinea pig): > 400 mg/kg
- Acute inhalation toxicity:
  - Remarks: No data available
- Acute dermal toxicity:
  - LD50 (Rat): > 1,600 mg/kg

bis(2,6-diisopropylphenyl)carbodiimide:
- Acute oral toxicity:
  - LD50 (Rat): > 300 - 2,000 mg/kg
    - Method: OECD Test Guideline 423
- 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

Amitraz (ISO):
- Species: Rabbit
- Result: No skin irritation

bis(2,6-diisopropylphenyl)carbodiimide:
- Species: Rabbit
- Method: OECD Test Guideline 404
- Result: No skin irritation
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

4-Nonylphenol, branched, ethoxylated:
- Species: Rabbit
- Result: Irreversible effects on the eye
- Remarks: Based on data from similar materials

Amitraz (ISO):
- Species: Rabbit
- Result: No eye irritation

bis(2,6-diisopropylphenyl)carbodiimide:
- Species: Rabbit
- Result: No eye irritation
- Method: OECD Test Guideline 405

Respiratory or skin sensitisation

Skin sensitisation
Not classified based on available information.

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

Amitraz (ISO):
- Test Type: Maximisation Test
- Exposure routes: Dermal
- Species: Guinea pig
- Result: Not a skin sensitizer.

bis(2,6-diisopropylphenyl)carbodiimide:
- Test Type: Maximisation Test
- Exposure routes: Skin contact
- Species: Guinea pig
- Method: OECD Test Guideline 406
- Result: negative
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

**Amitraz (ISO):**
- 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
  Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
  Result: negative

**bis(2,6-diisopropylphenyl)carbodiimide:**
- Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
  Method: OECD Test Guideline 471
  Result: negative
  Test Type: Chromosome aberration test in vitro
  Method: OECD Test Guideline 473
  Result: negative
  Test Type: In vitro mammalian cell gene mutation test
  Method: OECD Test Guideline 476
  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:
Species: Sufficient evidence of carcinogenicity in animal experiments

Amitraz (ISO):
Species: Rat
Application Route: Oral
Exposure time: 2 Years
NOAEL: > 10.18 mg/kg body weight
Result: negative

Species: Mouse
Exposure time: 2 Years
LOAEL: 2.3 mg/kg body weight
Result: positive
Target Organs: Liver, Stomach

Reproductive toxicity
May damage fertility.

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: Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Amitraz (ISO):
Effects on fertility: Test Type: Three-generation reproduction toxicity study
Species: Rat
Application Route: Oral
Fertility: NOAEL: > 4.8 mg/kg body weight
Result: No significant adverse effects were reported

Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: Oral
Developmental Toxicity: NOAEL: 3 mg/kg body weight
Remarks: No significant adverse effects were reported
Test Type: Embryo-foetal development  
Species: Rabbit  
Application Route: Oral  
Developmental Toxicity: NOAEL: 5 mg/kg body weight  
Result: Effects on foetal development

**bis(2,6-diisopropylphenyl)carbodiimide:**

**Effects on fertility**  
Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 421  
Result: positive

Test Type: Fertility  
Species: Rat  
Application Route: Ingestion  
Result: positive

**Effects on foetal development**  
Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 421  
Result: equivocal

**Reproductive toxicity - Assessment**  
Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

**STOT - single exposure**
May cause drowsiness or dizziness.

**Components:**

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

**STOT - repeated exposure**
May cause damage to organs (Kidney, Heart, Gastrointestinal tract, Lymph nodes) through prolonged or repeated exposure.

**Components:**

**Amitraz (ISO):**
Target Organs Assessment: Liver, Central nervous system  
May cause damage to organs through prolonged or repeated exposure.

**bis(2,6-diisopropylphenyl)carbodiimide:**

**Exposure routes**  
Ingestion

**Target Organs**  
Kidney, Heart, Gastrointestinal tract, Lymph nodes

**Assessment**  
Causes damage to organs through prolonged or repeated exposure.
Repeated dose toxicity

**Components:**

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

**Amitraz (ISO):**
- **Species:** Mouse  
- **NOAEL:** 3 mg/kg  
- **Application Route:** Oral  
- **Exposure time:** 90 Days  
- **Target Organs:** Liver

**Species:** Rat  
- **NOAEL:** 0.25 mg/kg  
- **Application Route:** Oral  
- **Exposure time:** 90 Days  
- **Target Organs:** Central nervous system, Liver  

**bis(2,6-diisopropylphenyl)carbodiimide:**
- **Species:** Rat  
- **NOAEL:** 4 mg/kg  
- **LOAEL:** 16 mg/kg  
- **Application Route:** Ingestion  
- **Exposure time:** 28 Days  
- **Method:** OECD Test Guideline 407

**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:**

**Amitraz (ISO):**
- **Ingestion:** Target Organs: Central nervous system
12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

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

- Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 8.2 mg/l
  Exposure time: 96 h
  Test substance: Water Accommodated Fraction

- Toxicity to daphnia and other aquatic invertebrates: EL50 (Daphnia magna (Water flea)): 4.5 mg/l
  Exposure time: 48 h
  Test substance: Water Accommodated Fraction
  Method: OECD Test Guideline 202

- Toxicity to algae/aquatic plants: EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l
  Exposure time: 96 h
  Test substance: Water Accommodated Fraction
  Method: OECD Test Guideline 201
  NOELR (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l
  Exposure time: 96 h
  Test substance: Water Accommodated Fraction
  Method: OECD Test Guideline 201

- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOELR (Daphnia magna (Water flea)): 2.6 mg/l
  Exposure time: 21 d
  Test substance: Water Accommodated Fraction
  Method: OECD Test Guideline 211

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

- Toxicity to fish: LC50: > 1 - 10 mg/l
  Exposure time: 96 h
  Remarks: Based on data from similar materials

- Toxicity to daphnia and other aquatic invertebrates: EC50: > 1 - 10 mg/l
  Exposure time: 48 h
  Remarks: Based on data from similar materials

- Toxicity to algae/aquatic plants: NOEC: 20 mg/l
  Exposure time: 96 h
  Remarks: Based on data from similar materials

**Amitraz (ISO):**

- Toxicity to fish: LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.45 mg/l
  Exposure time: 96 h

- Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.035 mg/l
  Exposure time: 48 h

- Toxicity to algae/aquatic plants: NOEC (Pseudokirchneriella subcapitata (green algae)): 0.04
SAFETY DATA SHEET

Amitraz (5%) Formulation

Version: 4.0
Revision Date: 2020/03/23
SDS Number: 1829223-00007
Date of last issue: 2019/09/13
Date of first issue: 2017/07/11

plants

M-Factor (Acute aquatic toxicity): 10
Toxicity to fish (Chronic toxicity): NOEC (Pimephales promelas (fathead minnow)): 0.00148 mg/l
Exposure time: 32 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
M-Factor (Chronic aquatic toxicity): 10

bis(2,6-diisopropylphenyl)carbodiimide:
Toxicity to fish:
LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.1 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): > 1 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: No toxicity at the limit of solubility

Toxicity to algae/aquatic plants:
ErC50 (Desmodesmus subspicatus (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

NOEC (Desmodesmus subspicatus (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms:
EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Amitraz (ISO):
Toxicity to fish:
LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.45 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 0.035 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:
NOEC (Pseudokirchneriella subcapitata (green algae)): 0.04 mg/l
Exposure time: 91 h

M-Factor (Acute aquatic toxicity): 10
Toxicity to fish (Chronic toxicity):
NOEC (Pimephales promelas (fathead minnow)): 0.00148 mg/l
Exposure time: 32 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
M-Factor (Chronic aquatic toxicity): 10

Persistence and degradability

Components:

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

bis(2,6-diisopropylphenyl)carbodiimide:
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 3 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Bioaccumulative potential

Components:

Amitraz (ISO):
Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1,333
Partition coefficient: n-octanol/water: log Pow: 5.5

bis(2,6-diisopropylphenyl)carbodiimide:
Bioaccumulation: Bioconcentration factor (BCF): > 500
Partition coefficient: n-octanol/water: log Pow: > 6.2

Amitraz (ISO):
Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1,333
Partition coefficient: n-octanol/water: log Pow: 5.5

Mobility in soil

Components:

Amitraz (ISO):
Distribution among environmental compartments: log Koc: 3.3

Amitraz (ISO):
Distribution among environmental compartments: log Koc: 3.3
mental compartments

Hazardous to the ozone layer
Not applicable

Other adverse effects
No data available

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

IATA-DGR
UN/ID No. : UN 3295
Proper shipping name : Hydrocarbons, liquid, n.o.s.
Class : 3
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.
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-D
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.
National Regulations
Refer to section 15 for specific national regulation.

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

Related Regulations

Fire Service Law
Group 4, Type 2 petroleums, Water insoluble liquid, (1000 litre), Hazardous rank III

Chemical Substance Control Law
Priority Assessment Chemical Substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>alpha-(Nonylphenyl)-omega-hydroxypoly(oxyethylene)</td>
<td>86</td>
</tr>
</tbody>
</table>

Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacture
Not applicable

Harmful Substances Required Permission for Manufacture
Not applicable

Substances Prevented From Impairment of Health
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity
Not applicable

Substances Subject to be Notified Names
Article 57-2 (Enforcement Order Table 9)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
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</thead>
<tbody>
<tr>
<td>Petroleum naphtha</td>
<td>330</td>
<td>&gt;=70 - &lt;80</td>
</tr>
</tbody>
</table>

Substances Subject to be Indicated Names
Article 57 (Enforcement Order Article 18)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum naphtha</td>
<td>330</td>
</tr>
</tbody>
</table>

Ordinance on Prevention of Hazards Due to Specified Chemical Substances
Not applicable

Ordinance on Prevention of Lead Poisoning
Not applicable
Ordinance on Prevention of Tetraalkyl Lead Poisoning
Not applicable

Ordinance on Prevention of Organic Solvent Poisoning
Organic Solvents Class 3

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)
Inflammable Substance

Poisonous and Deleterious Substances Control Law
Not applicable

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Class I Designated Chemical Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>poly(oxyethylene) nonylphenyl ether</td>
<td>410</td>
<td>15</td>
</tr>
<tr>
<td>3-methyl-1,5-di(2,4-xylyl)-1,3,5-triazapenta-1,4-diene</td>
<td>432</td>
<td>5.0</td>
</tr>
</tbody>
</table>

High Pressure Gas Safety Act
Not applicable

Explosive Control Law
Not applicable

Vessel Safety Law
Flammable liquids (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

Aviation Law
Flammable liquid (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

Marine Pollution and Sea Disaster Prevention etc Law
Bulk transportation : Not classified as noxious liquid substance
Pack transportation : Classified as marine pollutant

Narcotics and Psychotropics Control Act
Narcotic or Psychotropic Raw Material (Export / Import Permission)
Not applicable
Specific Narcotic or Psychotropic Raw Material (Export / Import permission)
Not applicable

Waste Disposal and Public Cleansing Law
Specially Controlled Industrial Waste

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

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format: yyyy/mm/dd

Full text of other abbreviations
ACGIH: USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA: 8-hour, time-weighted average

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 - Carcinogenic, 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 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; KECL - 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; 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 mate-
Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.

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