SAFETY DATA SHEET

Amitraz Liquid Formulation

Version 3.5  Revision Date: 09.04.2021  SDS Number: 1644324-00012  Date of last issue: 02.10.2020

Date of first issue: 09.05.2017

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Amitraz Liquid Formulation

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

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

2. HAZARDS IDENTIFICATION

Manufacture, Storage and Import of Hazardous Chemicals Rules 1989

Classification
- Highly flammable liquids

GHS Classification
- Flammable liquids: Category 3
- Acute toxicity (Oral): Category 5
- Skin corrosion/irritation: Category 2
- 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: Category 2 (Liver, Central nervous system)
- Aspiration hazard: Category 1
- Short-term (acute) aquatic hazard: Category 1
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Long-term (chronic) aquatic hazard : Category 1

GHS label elements
Hazard pictograms :

Signal word : Danger

Hazard statements :
H226 Flammable liquid and vapour.
H303 May be harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
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 (Liver, Central nervous system) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :
Prevention:
P203 Obtain, read and follow all safety instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

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

Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

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;= 60 - &lt;= 70</td>
</tr>
<tr>
<td>4-Nonylphenol, branched, ethoxylated</td>
<td>127087-87-0</td>
<td>&gt;= 10 - &lt;= 20</td>
</tr>
<tr>
<td>Amitraz (ISO)</td>
<td>33089-61-1</td>
<td>12.5</td>
</tr>
<tr>
<td>7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate</td>
<td>2386-87-0</td>
<td>&lt; 10</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 : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

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 harmful if swallowed.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause an allergic skin reaction.
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.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment.
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

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

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition.
Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items...
employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

7. HANDLING AND STORAGE

Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation: If sufficient ventilation is unavailable, use with local exhaust ventilation. Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling: Do not get on skin or clothing. Do not breathe mist or vapours. Do not swallow. Avoid contact with 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. Take care to prevent spills, waste and minimize release to the environment.


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>Solvent naphtha (petroleum)</td>
<td>64742-95-6</td>
<td>TWA</td>
<td>300 ppm</td>
<td>IN OEL</td>
</tr>
</tbody>
</table>
light aromatic & 900 mg/m³ & STEL 500 ppm 1,500 mg/m³ & IN OEL \\
Amitraz (ISO) 33089-61-1 & TWA 200 mg/m³ (total hydrocarbon vapor) & ACGIH \\
& Wipe limit 200 μg/100 cm² & Internal \\

**Engineering measures**

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

Minimize open handling.

Use explosion-proof electrical, ventilating and lighting equipment.

**Personal protective equipment**

**Respiratory protection**

If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

**Filter type**

Combined particulates and organic vapour type

**Hand protection**

**Material**

Chemical-resistant gloves

**Remarks**

Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

**Eye protection**

Wear safety glasses with side shields or goggles.

If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.

Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

**Skin and body protection**

Work uniform or laboratory coat.

Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially contaminated clothing.

**Hygiene measures**

If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.

When using do not eat, drink or smoke.

Contaminated work clothing should not be allowed out of the workplace.

Wash contaminated clothing before re-use.

The effective operation of a facility should include review of...
engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

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>Colorless to pale yellow</td>
</tr>
<tr>
<td>Odour</td>
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<tr>
<td>Odour Threshold</td>
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<tr>
<td>pH</td>
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<tr>
<td>Melting point/freezing point</td>
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<td>Initial boiling point and boiling range</td>
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</tr>
<tr>
<td>Flash point</td>
<td>56 °C</td>
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<tr>
<td>Evaporation rate</td>
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<tr>
<td>Flammability (solid, gas)</td>
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</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
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<tr>
<td>Lower explosion limit / Lower flammability limit</td>
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<tr>
<td>Vapour pressure</td>
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<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Relative density</td>
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<tr>
<td>Density</td>
<td>0.92 - 1.20 g/cm³</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Water solubility</td>
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<td></td>
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<tr>
<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Auto-ignition temperature</td>
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<tr>
<td>Decomposition temperature</td>
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</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
</tbody>
</table>
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Viscosity, kinematic : No data available
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : Not applicable
Particle size : No data available

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
Skint contact
Ingestion
Eye contact

Acute toxicity
May be harmful if swallowed.

Product:
Acute oral toxicity : Acute toxicity estimate: 3,524 mg/kg
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

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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Acute oral toxicity: LD50 (Rat, male): 2,959 - 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity: LC50 (Rat): >= 5.19 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity

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

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

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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
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Serious eye damage/eye irritation
Not classified based on available information.

Components:

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

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

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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Species: Rabbit
Method: OECD Test Guideline 405
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:

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

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

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

### 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
- **Test Type**: Maximisation Test
- **Exposure routes**: Skin contact
- **Species**: Guinea pig
- **Result**: positive
- **Assessment**: Probability or evidence of skin sensitisation in humans

### 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 spermato-gonia
  - 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

#### 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
- **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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Genotoxicity in vitro: Test Type: In vitro mammalian cell gene mutation test
Result: positive

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

Test Type: Micronucleus test
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Germ cell mutagenicity - Assessment: Weight of evidence does not support classification as a germ cell mutagen.

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

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
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: Test Type: Embryo-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.

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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

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 (Liver, Central nervous system) through prolonged or repeated exposure.

Components:

Amitraz (ISO):
Target Organs : Liver, Central nervous system
Assessment : May cause 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

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

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

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

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

4-Nonylphenol, branched, ethoxylated:
Toxicity to fish: LC50 (Oryzias latipes (Orange-red killifish)): 8.2 mg/l
  Exposure time: 96 h
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: 0.00148 mg/l
                                     Exposure time: 32 d
                                     Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.0011 mg/l
                                                                      Exposure time: 21 d
                                                                      Species: Daphnia magna (Water flea)
M-Factor (Chronic aquatic toxicity) : 10

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 24 mg/l
                   Exposure time: 96 h
                   Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 40 mg/l
                                                     Exposure time: 48 h
                                                     Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants : ErC50 ( Selenastrum capricornutum (green algae)): > 110 mg/l
                                   Exposure time: 72 h
                                   Method: OECD Test Guideline 201
                                   NOEC ( Selenastrum capricornutum (green algae)): 30 mg/l
                                   Exposure time: 72 h
                                   Method: OECD Test Guideline 201
Toxicity to microorganisms : EC10 (Natural microorganism): 409 mg/l
                            Exposure time: 3 h
                            Method: OECD Test Guideline 209

Persistence and degradability
Components:
Solvent naphtha (petroleum), light aromatic:
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Biodegradability

Result: Inherently biodegradable.
Biodegradation: 94 %
Exposure time: 25 d

4-Nonylphenol, branched, ethoxylated:

Biodegradability

Result: Not readily biodegradable.

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:

Biodegradability

Biodegradation: 71 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in water

Degradation half life (DT50): 2 d

Bioaccumulative potential

Components:

4-Nonylphenol, branched, ethoxylated:
Bioaccumulation

Species: Fish
Bioconcentration factor (BCF): < 100
Remarks: Based on data from similar materials

Amitraz (ISO):
Bioaccumulation

Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1,333

Partition coefficient: n-octanol/water

log Pow: 5.5

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:

Partition coefficient: n-octanol/water

log Pow: 1.34

Mobility in soil

Components:

Amitraz (ISO):

Distribution among environmental compartments

log Koc: 3.3

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 han-
14. TRANSPORT INFORMATION

International Regulations

**UNRTDG**
- UN number: UN 1993
- Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Solvent naphtha (petroleum), light aromatic)
- Class: 3
- Packing group: III
- Labels: Flammable Liquids

**IATA-DGR**
- UN/ID No.: UN 1993
- Proper shipping name: Flammable liquid, n.o.s. (Solvent naphtha (petroleum), light aromatic)
- Class: 3
- Packing group: III
- Labels: Flammable Liquids
- Packing instruction (cargo aircraft): 366
- Packing instruction (passenger aircraft): 355
- Environmentally hazardous: yes

**IMDG-Code**
- UN number: UN 1993
- Proper shipping name: FLAMMABLE LIQUID, N.O.S. (Solvent naphtha (petroleum), light aromatic, Amitraz (ISO))
- Class: 3
- Packing group: III
- Labels: 3
- EmS Code: F-E, S-E
- Marine pollutant: yes

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

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

Amitraz Liquid Formulation

Version 3.5 Revision Date: 09.04.2021 SDS Number: 1644324-00012 Date of last issue: 02.10.2020 Date of first issue: 09.05.2017

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)
IN OEL: India. Permissible levels of certain chemical substances in work environment.

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

AIIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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;
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.