SAFETY DATA SHEET

Fluralaner / Moxidectin Liquid Formulation

**SECTION 1. IDENTIFICATION**

- **Product name**: Fluralaner / Moxidectin Liquid Formulation
- **Manufacturer or supplier’s details**
  - **Company name of supplier**: Merck & Co., Inc
  - **Address**: 2000 Galloping Hill Road, Kenilworth - New Jersey - U.S.A. 07033
  - **Telephone**: 908-740-4000
  - **Telefax**: 908-735-1496
  - **Emergency telephone**: 1-908-423-6000
  - **E-mail address**: EHSDATASTEWARD@merck.com
- **Recommended use of the chemical and restrictions on use**
  - **Recommended use**: Veterinary product

**SECTION 2. HAZARDS IDENTIFICATION**

- **GHS classification in accordance with 29 CFR 1910.1200**
  - Flammable liquids: Category 2
  - Skin irritation: Category 2
  - Eye irritation: Category 2A
  - Reproductive toxicity: Category 1B
  - Specific target organ systemic toxicity - repeated exposure: Category 1 (Central nervous system)

- **GHS label elements**
  - **Hazard pictograms**: ![Hazard pictograms]
  - **Signal Word**: Danger
  - **Hazard Statements**: H225 Highly flammable liquid and vapor.
  - **H315 Causes skin irritation.**
  - **H319 Causes serious eye irritation.**
  - **H360D May damage the unborn child.**
  - **H372 Causes damage to organs (Central nervous system) through prolonged or repeated exposure.**

- **Precautionary Statements**
  - **Prevention**: Obtain special instructions before use.
  - **P201**: Do not handle until all safety precautions have been read and understood.
  - **P202**: Keep away from heat/sparks/open flames/hot surfaces.
  - **P203**: No smoking.

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**Version** 5.0  **Revision Date**: 10/18/2018  **SDS Number**: 656890-00009  **Date of last issue**: 04/12/2018  **Date of first issue**: 05/02/2016
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

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
Vapors may form explosive mixture with air.

SECTION 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>N,N-Dimethylacetamide</td>
<td>127-19-5</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td>Fluralaner</td>
<td>864731-61-3</td>
<td>&gt;= 20 - &lt; 30</td>
</tr>
<tr>
<td>N,N-Diethyl-m-toluamide</td>
<td>134-62-3</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Moxidectin</td>
<td>113507-06-5</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
</tbody>
</table>

Actual concentration is withheld as a trade secret

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.

If swallowed  : If swallowed, DO NOT induce vomiting.
                 Get medical attention.
                 Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed : Causes skin irritation.
                                                             Causes serious eye irritation.
                                                             May damage the unborn child.
                                                             Causes 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.

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

Hazardous combustion products : Carbon oxides
                                Chlorine compounds
                                Fluorine compounds
                                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 fire-fighters : In the event of fire, wear self-contained breathing apparatus.
                                               Use personal protective equipment.
SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Remove all sources of ignition.
- Ventilate the area.
- 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/vapors/mists with a water spray jet.
- For large spills, provide diking or other appropriate containment to keep material from spreading. If diked 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/PERSONAL PROTECTION section.

Local/Total ventilation:
- Use with local exhaust ventilation.
- Use only in an area equipped with explosion-proof exhaust ventilation if advised by assessment of the local exposure potential.

Advice on safe handling:
- Do not get on skin or clothing.
- Do not breathe vapors 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.

Materials to avoid: Do not store with the following product types:
- Strong oxidizing agents
- Organic peroxides
- Flammable solids
- Pyrophoric liquids
- Pyrophoric solids
- Self-heating substances and mixtures
- Substances and mixtures which in contact with water emit flammable gases
- Explosives
- Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients 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>N,N-Dimethylacetamide</td>
<td>127-19-5</td>
<td>TWA</td>
<td>10 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 ppm 35 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 ppm 35 mg/m³</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td>Fluralaner</td>
<td>864731-61-3</td>
<td>TWA</td>
<td>100 µg/m³ (OEB 2)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information: Skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>1000 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>TWA</td>
<td>250 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>500 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1,000 ppm 2,400 mg/m³</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>250 ppm 590 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>Moxidectin</td>
<td>113507-06-5</td>
<td>TWA</td>
<td>10 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>100 µg/100 cm²</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N-Dimethylacetamide</td>
<td>127-19-5</td>
<td>N-Methylacetamide</td>
<td>Urine</td>
<td>End of shift at end of work-week</td>
<td>30 mg/g Creatinine</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of 25 mg/l</td>
<td>ACGIH</td>
<td></td>
</tr>
</tbody>
</table>
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.

Personal protective equipment

Respiratory protection

General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

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

Ensure that eye flushing systems and safety showers are located 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.

SECTION 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>Color</td>
<td>clear</td>
</tr>
<tr>
<td>Odor</td>
<td>No information available.</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>36 °F / 2 °C</td>
</tr>
<tr>
<td>Method: closed cup</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.06</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Fluralaner / Moxidectin Liquid Formulation

**Explosive properties**: Not explosive

**Oxidizing properties**: The substance or mixture is not classified as oxidizing.

**Particle size**: Not applicable

### SECTION 10. STABILITY AND REACTIVITY

**Reactivity**: Not classified as a reactivity hazard.

**Chemical stability**: Stable under normal conditions.

**Possibility of hazardous reactions**: Highly flammable liquid and vapor. Vapors 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.

### SECTION 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: 3,547 mg/kg
  Method: Calculation method

- **Acute inhalation toxicity**: Acute toxicity estimate: 5.3 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: Calculation method

- **Acute dermal toxicity**: Acute toxicity estimate: 2,827 mg/kg
  Method: Calculation method

#### Components:

**N,N-Dimethylacetamide**:

- **Acute oral toxicity**: LD50 (Rat): 4,800 mg/kg

- **Acute inhalation toxicity**: LC50 (Rat): 2.2 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist

- **Acute dermal toxicity**: Acute toxicity estimate: 1,100 mg/kg
  Method: Expert judgment
  Remarks: Based on harmonised classification in EU regulation
### Fluralaner /

<table>
<thead>
<tr>
<th>Route of Administration</th>
<th>Toxicity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): &gt; 2,000 mg/kg</td>
<td>No mortality observed at this dose. No significant adverse effects were reported</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): &gt; 2,000 mg/kg</td>
<td>No significant adverse effects were reported</td>
</tr>
</tbody>
</table>

### N,N-Diethyl-m-toluamide:

<table>
<thead>
<tr>
<th>Route of Administration</th>
<th>Toxicity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 1,950 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

### Acetone:

<table>
<thead>
<tr>
<th>Route of Administration</th>
<th>Toxicity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 5,800 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

### Moxidectin:

<table>
<thead>
<tr>
<th>Route of Administration</th>
<th>Toxicity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 106 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 (Mouse): 42 - 84 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): 3.28 mg/l</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LC50 (Rat): 2.87 - 4.06 mg/l</td>
<td>Test atmosphere: dust/mist</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): &gt; 2,000 mg/kg</td>
<td>No significant adverse effects were reported</td>
</tr>
</tbody>
</table>

### Acute toxicity (other routes of administration)

<table>
<thead>
<tr>
<th>Route of Administration</th>
<th>Toxicity</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route: Intraperitoneal</td>
<td>LD50 (Rat): 394 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 (Mouse): 84 mg/kg</td>
<td>Application Route: Intraperitoneal</td>
</tr>
<tr>
<td></td>
<td>LD50 (Rat): &gt; 640 mg/kg</td>
<td>Application Route: Subcutaneous</td>
</tr>
</tbody>
</table>
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Fluralaner / Moxidectin Liquid Formulation

LD50 (Mouse): 263 mg/kg
Application Route: Subcutaneous

Skin corrosion/irritation
Causes skin irritation.

Components:

**N,N-Dimethylacetamide:**
Species: Rabbit
Result: No skin irritation

**Fluralaner:**
Species: Rabbit
Result: No skin irritation

**N,N-Diethyl-m-toluamide:**
Species: Rabbit
Result: Skin irritation

**Acetone:**
Assessment: Repeated exposure may cause skin dryness or cracking.

**Moxidectin:**
Species: Rabbit
Result: Mild skin irritant

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:

**N,N-Dimethylacetamide:**
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

**Fluralaner:**
Species: Rabbit
Result: Mild eye irritant

**N,N-Diethyl-m-toluamide:**
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

**Acetone:**
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days
Method: OECD Test Guideline 405
Moxidectin:
Species: Rabbit
Result: Moderate eye irritation

Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

N,N-Dimethylacetamide:
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Fluralaner:
Test Type: Maximization Test
Routes of exposure: Dermal
Species: Guinea pig
Result: Not a skin sensitizer.

Acetone:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Moxidectin:
Test Type: Buehler Test
Routes of exposure: Dermal
Species: Guinea pig
Result: Not a skin sensitizer.

Germ cell mutagenicity
Not classified based on available information.

Components:

N,N-Dimethylacetamide:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo: Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Rat
Application Route: Inhalation
Method: OECD Test Guideline 478
Result: negative
<table>
<thead>
<tr>
<th>Component</th>
<th>Genotoxicity in vitro</th>
<th>Genotoxicity in vivo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fluralaner</strong></td>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>Test Type: Micronucleus test</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td>Species: Mouse</td>
</tr>
<tr>
<td></td>
<td>Test Type: Mouse Lymphoma</td>
<td>Cell type: Bone marrow</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td>Application Route: Oral</td>
</tr>
<tr>
<td></td>
<td>Test Type: Chromosomal aberration</td>
<td>Result: negative</td>
</tr>
<tr>
<td><strong>N,N-Diethyl-m-toluamide</strong></td>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td></td>
</tr>
<tr>
<td><strong>Acetone</strong></td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test Type: Chromosome aberration test in vitro</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td></td>
</tr>
<tr>
<td><strong>Moxidectin</strong></td>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td>Species: Mouse</td>
</tr>
<tr>
<td></td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>Application Route: Ingestion</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Test system: Chinese hamster ovary cells</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test Type: in vitro test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test system: Escherichia coli</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test Type: Chromosomal aberration</td>
<td>Species: Rat</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
<td>Cell type: Bone marrow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Result: negative</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Fluralaner / Moxidectin Liquid Formulation

Revision Date: 10/18/2018
SDS Number: 656890-00009
Date of last issue: 04/12/2018
Date of first issue: 05/02/2016

Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Rat
Cell type: Liver cells
Result: negative

Carcinogenicity
Not classified based on available information.

Components:

N,N-Dimethylacetamide:
Species: Rat
Application Route: Inhalation (vapor)
Exposure time: 18 month(s)
Result: negative

Fluralaner:
Carcinogenicity - Assessment: No data available

N,N-Diethyl-m-toluamide:
Species: Rat
Application Route: Ingestion
Exposure time: 104 weeks
Result: negative

Acetone:
Species: Mouse
Application Route: Skin contact
Exposure time: 424 days
Result: negative

Moxidectin:
Species: Mouse
Application Route: Oral
Exposure time: 2 Years
NOAEL: 4.5 mg/kg body weight
Result: negative

Species: Rat
Application Route: Oral
Exposure time: 2 Years
NOAEL: 4.5 mg/kg body weight
Result: negative

Species: Dog
Application Route: Oral
Exposure time: 1 Years
NOAEL: 0.5 mg/kg body weight
Result: negative
IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity
May damage the unborn child.

Components:

**N,N-Dimethylacetamide:**
- **Effects on fertility**: Test Type: One-generation reproduction toxicity study
  Species: Rat
  Application Route: Inhalation
  Result: negative
- **Effects on fetal development**: Test Type: Embryo-fetal development
  Species: Rat
  Application Route: Inhalation
  Result: positive
- **Reproductive toxicity - Assessment**: Clear evidence of adverse effects on development, based on animal experiments.

**Fluralaner:**
- **Effects on fertility**: Test Type: Two-generation study
  Species: Rat
  Application Route: Oral
  General Toxicity Parent: NOAEL: 50 mg/kg body weight
  General Toxicity F1: LOAEL: 100 mg/kg body weight
  Result: No effects on fertility., Postimplantation loss., Adverse neonatal effects.
  Test Type: One-generation reproduction toxicity study
  Species: Dog
  Application Route: Oral
  Fertility: NOAEL: 75 mg/kg body weight
  Result: No effects on fertility and early embryonic development were detected.
  Remarks: No significant adverse effects were reported
- **Effects on fetal development**: Test Type: Development
  Species: Rat
  Application Route: Oral
  Developmental Toxicity: NOAEL: 100 mg/kg body weight
  Result: Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses, No teratogenic effects.
  Test Type: Development
Species: Rabbit  
Application Route: Oral  
Developmental Toxicity: NOAEL: 10 mg/kg body weight  
Result: Skeletal malformations., Visceral malformations.  
Remarks: Maternal toxicity observed.

Test Type: Development  
Species: Rabbit  
Application Route: Dermal  
Developmental Toxicity: NOAEL: 100 mg/kg body weight  
Result: Skeletal malformations.

Reproductive toxicity - Assessment: Suspected of damaging the unborn child.

N,N-Diethyl-m-toluamide:

Effects on fetal development: Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

Acetone:

Effects on fertility: Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on fetal development: Test Type: Embryo-fetal development  
Species: Rat  
Application Route: inhalation (vapor)  
Result: negative

Moxidectin:

Effects on fertility: Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Oral  
General Toxicity F1: LOAEL: 0.8 mg/kg body weight  
Symptoms: Reduced fetal weight., Fetal mortality.  
Result: No effects on fertility., Some evidence of adverse effects on development, based on animal experiments.

Test Type: Three-generation reproduction toxicity study  
Species: Rat  
Application Route: Oral  
General Toxicity F1: LOAEL: 0.8 mg/kg body weight  
Symptoms: Reduced fetal weight., Fetal mortality.  
Result: No effects on fertility., Some evidence of adverse effects on development, based on animal experiments.

Effects on fetal development: Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: LOAEL: 10 mg/kg body weight  
Embryo-fetal toxicity.: LOAEL: 10 mg/kg body weight
Result: Skeletal malformations.
Remarks: The effects were seen only at maternally toxic doses.

Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Oral
General Toxicity Maternal: LOAEL: 5 mg/kg body weight
Developmental Toxicity: NOAEL: 10 mg/kg body weight
Result: No teratogenic effects., No embryotoxic effects.

Reproductive toxicity - Assessment
Some evidence of adverse effects on development, based on animal experiments.

STOT-single exposure
Not classified based on available information.

Components:

Acetone:
Assessment: May cause drowsiness or dizziness.

STOT-repeated exposure
Causes damage to organs (Central nervous system) through prolonged or repeated exposure.

Components:

Moxidectin:
Target Organs: Central nervous system
Assessment: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

N,N-Dimethylacetamide:
Species: Rat
NOAEL: 90 mg/m³
LOAEL: 360 mg/m³
Application Route: inhalation (vapor)
Exposure time: 24 Months

Fluralaner:
Species: Dog
NOAEL: 1 mg/kg
Application Route: Oral
Exposure time: 52 Weeks
Target Organs: Liver
Remarks: No significant adverse effects were reported

Species: Juvenile dog
LOAEL: 56 - 280 mg/kg
<table>
<thead>
<tr>
<th>Application Route</th>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure time</td>
<td>24 Weeks</td>
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<td>Symptoms</td>
<td>Diarrhea</td>
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<td>Species</td>
<td>Rat</td>
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<td>LOAEL</td>
<td>400 mg/kg</td>
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<tr>
<td>Application Route</td>
<td>Oral</td>
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<td>Exposure time</td>
<td>90 Days</td>
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<tr>
<td>Target Organs</td>
<td>Liver, thymus</td>
</tr>
<tr>
<td>Remarks</td>
<td>No significant adverse effects were reported</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
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<tr>
<td>LOAEL</td>
<td>500 mg/kg</td>
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<td>Application Route</td>
<td>Dermal</td>
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<td>Exposure time</td>
<td>90 Days</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver</td>
</tr>
<tr>
<td><strong>Acetone:</strong></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
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<tr>
<td>NOAEL</td>
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<td>LOAEL</td>
<td>1,700 mg/kg</td>
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<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 Days</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>NOAEL</td>
<td>45 mg/l</td>
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<td>Application Route</td>
<td>inhalation (vapor)</td>
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<td>Exposure time</td>
<td>8 Weeks</td>
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<td><strong>Moxidectin:</strong></td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Mouse</td>
</tr>
<tr>
<td>NOAEL</td>
<td>3.9 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>15.4 mg/kg</td>
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<tr>
<td>Application Route</td>
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<td>Exposure time</td>
<td>4 Weeks</td>
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<tr>
<td>Symptoms</td>
<td>Tremors</td>
</tr>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>NOAEL</td>
<td>3.9 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>7.9 mg/kg</td>
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<td>Target Organs</td>
<td>Central nervous system</td>
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<td>Symptoms</td>
<td>Tremors, Salivation</td>
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<tr>
<td>Species</td>
<td>Dog</td>
</tr>
<tr>
<td>NOAEL</td>
<td>0.3 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>0.9 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 Days</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Tremors, Lachrymation, Salivation</td>
</tr>
<tr>
<td>Species</td>
<td>Dog</td>
</tr>
</tbody>
</table>
NOAEL: 0.3 mg/kg
LOAEL: 0.87 mg/kg
Application Route: Oral
Exposure time: 52 Weeks
Target Organs: Central nervous system
Symptoms: Tremors, Lachrymation

Aspiration toxicity
Not classified based on available information.

Components:

Fluralaner:
Not applicable

Experience with human exposure

Components:

Fluralaner:
Skin contact: Remarks: May irritate skin.
Eye contact: Remarks: May cause eye irritation.

Moxidectin:
Inhalation: Remarks: No human information is available.
Skin contact: Remarks: No human information is available.
Eye contact: Remarks: No human information is available.
Ingestion: Remarks: No human information is available.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

N,N-Dimethylacetamide:
Toxicity to fish: LC50 (Leuciscus idus (Golden orfe)): > 500 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): > 500 mg/l
Exposure time: 48 h

Toxicity to algae:
EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h
EC10 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h

Toxicity to microorganisms:
EC10: > 1,995 mg/l
Exposure time: 30 min

Fluralaner:
Toxicity to fish:
LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.0488 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)): > 0.015 mg/l*  
| **Exposure time:** 48 h  
| **Method:** OECD Test Guideline 202  
| **Remarks:** No toxicity at the limit of solubility.  
| Toxicity to algae | NOEC *(Pseudokirchneriella subcapitata (green algae)): >= 0.08 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 *(Zebrafish): >= 0.049 mg/l*  
| **Exposure time:** 21 d  
| **Method:** OECD Test Guideline 204  
| **Remarks:** No toxicity at the limit of solubility.  
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | NOEC *(Daphnia magna (Water flea)): 0.000047 mg/l*  
| **Exposure time:** 21 d  
| **Method:** OECD Test Guideline 211  

### N,N-Diethyl-m-toluamide:

| Toxicity to fish | LC50 *(Pimephales promelas (fathead minnow)): 110 mg/l*  
| **Exposure time:** 96 h  
| Toxicity to daphnia and other aquatic invertebrates | EC50 *(Daphnia magna (Water flea)): 75 mg/l*  
| **Exposure time:** 48 h  

### Acetone:

| Toxicity to fish | LC50 *(Oncorhynchus mykiss (rainbow trout)): 5,540 mg/l*  
| **Exposure time:** 96 h  
| Toxicity to daphnia and other aquatic invertebrates | EC50 *(Daphnia pulex (Water flea)): 8,800 mg/l*  
| **Exposure time:** 48 h  
| Toxicity to algae | NOEC *(Pseudokirchneriella subcapitata (green algae)): 7,000 mg/l*  
| **Exposure time:** 96 h  
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | NOEC *(Daphnia magna (Water flea)): >= 79 mg/l*  
| **Exposure time:** 21 d  
| **Method:** OECD Test Guideline 211  
| Toxicity to microorganisms | EC50: 61,150 mg/l  
| **Exposure time:** 30 min  
| **Method:** ISO 8192  

### Moxidectin:

| Toxicity to fish | LC50 *(Lepomis macrochirus (Bluegill sunfish)): 0.0006 mg/l*  
| **Exposure time:** 96 h  

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Method: OECD Test Guideline 203

LC50 (Onchorhynchus mykiss (rainbow trout)): 0.0002 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
EC50 (Daphnia magna (Water flea)): 0.00003 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae
EC50 (Pseudokirchneriella subcapitata (green algae)): 0.087 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

**Persistence and degradability**

**Components:**

- **N,N-Dimethylacetamide:**
  - Biodegradability: Result: Not readily biodegradable.
  - Biodegradation: 70 %
  - Exposure time: 28 d
  - Remarks: The 10 day time window criterion is not fulfilled.

- **N,N-Diethyl-m-toluamide:**
  - Biodegradability: Result: Not readily biodegradable.

- **Acetone:**
  - Biodegradability: Result: Readily biodegradable.
  - Biodegradation: 91 %
  - Exposure time: 28 d

**Bioaccumulative potential**

**Components:**

- **Fluralaner:**
  - Bioaccumulation: Species: Zebrafish
    - Bioconcentration factor (BCF): 79.4
    - Method: OECD Test Guideline 305
  - Partition coefficient: n-octanol/water: log Pow: 4.5

- **N,N-Diethyl-m-toluamide:**
  - Partition coefficient: n-octanol/water: log Pow: 2.02

- **Acetone:**
  - Partition coefficient: n-octanol/water: log Pow: -0.27 - -0.23

- **Moxidectin:**
Partition coefficient: n-octanol/water: log Pow: 4.7

Mobility in soil

Components:

Fluralaner:

Distribution among environmental compartments: log Koc: 3.4

Other adverse effects

Components:

Fluralaner:

Results of PBT and vPvB assessment: This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

SECTION 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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 1090
Proper shipping name: ACETONE SOLUTION
Class: 3
Packing group: II
Labels: 3

IATA-DGR
UN/ID No.: UN 1090
Proper shipping name: Acetone solution
Class: 3
Packing group: II
Labels: Flammable Liquids
Packing instruction (cargo aircraft): 364
Packing instruction (passenger aircraft): 353

IMDG-Code
UN number: UN 1090
Proper shipping name: ACETONE SOLUTION
(Moxidectin, 2,6-Di-tert-butyl-p-cresol)

Class: 3
Packing group: II
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.

**Domestic regulation**

49 CFR
UN/ID/NA number: UN 1090
Proper shipping name: Acetone SOLUTION
Class: 3
Packing group: II
Labels: FLAMMABLE LIQUID
ERG Code: 127
Marine pollutant: yes (Moxidectin, 2,6-Di-tert-butyl-p-cresol)

**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**

**EPCRA - Emergency Planning and Community Right-to-Know**

**CERCLA Reportable Quantity**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetone</td>
<td>67-64-1</td>
<td>5000</td>
<td>33333</td>
</tr>
</tbody>
</table>

**SARA 304 Extremely Hazardous Substances Reportable Quantity**
This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**
This material does not contain any components with a section 302 EHS TPQ.

**SARA 311/312 Hazards**
Flammable (gases, aerosols, liquids, or solids)
Skin corrosion or irritation
Serious eye damage or eye irritation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

**SARA 313**
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**US State Regulations**

Pennsylvania Right To Know
SAFETY DATA SHEET

Fluralaner / Moxidectin Liquid Formulation

Version 5.0  Revision Date: 10/18/2018  SDS Number: 656890-00009  Date of last issue: 04/12/2018  Date of first issue: 05/02/2016

N,N-Dimethylacetamide  127-19-5
Fluralaner  864731-61-3
Poly(oxy-1,2-ethanediyl), α-[tetrahydro-2-furanyl)methyl]-ω-hydroxy-
Acetone  67-64-1
N,N-Diethyl-m-toluamide  134-62-3

California Prop. 65
WARNING: This product can expose you to chemicals including N,N-Dimethylacetamide, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances
N,N-Dimethylacetamide  127-19-5
Acetone  67-64-1

California Permissible Exposure Limits for Chemical Contaminants
N,N-Dimethylacetamide  127-19-5
Acetone  67-64-1

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

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:

HMIS® IV:

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
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</thead>
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<tr>
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</table>

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Lim-
SAFETY DATA SHEET

Fluralaner / Moxidectin Liquid Formulation

Version 5.0  Revision Date: 10/18/2018  SDS Number: 656890-00009  Date of last issue: 04/12/2018
Date of first issue: 05/02/2016

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

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 guide 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 shall not be considered a warranty or quality specification of any type. The information provided

AICCS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELox - 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; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

Sources of key data used to compile the Material Safety Data Sheet:


Revision Date: 10/18/2018

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<table>
<thead>
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<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
<th>Date of first issue:</th>
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<td>656890-00009</td>
<td>04/12/2018</td>
<td>05/02/2016</td>
</tr>
</tbody>
</table>

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.

US / Z8