SAFETY DATA SHEET

Indoxacarb / Permethrin Formulation

SECTION 1. IDENTIFICATION

Product name: Indoxacarb / Permethrin 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 3
Acute toxicity (Oral): Category 4
Acute toxicity (Inhalation): Category 4
Skin sensitization: Category 1
Specific target organ toxicity - single exposure: Category 3
Specific target organ toxicity - repeated exposure: Category 1 (Blood, Nervous system, Heart)

GHS label elements

Hazard pictograms:

Signal Word: Danger

Hazard Statements:
H226 Flammable liquid and vapor.
H302 + H332 Harmful if swallowed or if inhaled.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
H372 Causes damage to organs (Blood, Nervous system, Heart) through prolonged or repeated exposure.

Precautionary Statements:
Prevention:
P210 Keep away from heat/sparks/open flames/hot surfaces.
No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equip-
ment.
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.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P314 Get medical advice/ attention if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing 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

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chemical name</td>
</tr>
<tr>
<td>Mixture</td>
<td>Permethrin (ISO)</td>
</tr>
<tr>
<td></td>
<td>1-Methoxy-2-propanol</td>
</tr>
<tr>
<td></td>
<td>Indoxacarb (ISO)</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.
If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.

In case of skin contact:
- In case of contact, immediately flush skin with plenty of water.
- Remove contaminated clothing and shoes.
- Get medical attention.
- Wash clothing before reuse.
- Thoroughly clean shoes before reuse.

If swallowed:
- If swallowed, DO NOT induce vomiting.
- Get medical attention.
- Rinse mouth thoroughly with water.
- Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:
- Harmful if swallowed or if inhaled.
- May cause an allergic skin reaction.
- May cause drowsiness or dizziness.
- 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 (see section 8).

Notes to physician:
- Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing media:
- High volume water jet

Specific hazards during fire fighting:
- Do not use a solid water stream as it may scatter and spread fire.
- Flash back possible over considerable distance.
- Vapors may form explosive mixtures with air.
- Exposure to combustion products may be a hazard to health.

Hazardous combustion products:
- Carbon oxides
- Chlorine compounds

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

Special protective equipment for 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.
- Use personal protective equipment.
- Follow safe handling advice and personal protective
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: 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 vapors or spray mist. Do not swallow. Avoid contact with 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.

Conditions for safe storage: Keep in properly labeled 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:

- 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>Permethrin (ISO)</td>
<td>52645-53-1</td>
<td>TWA</td>
<td>80 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>800 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>TWA</td>
<td>50 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>100 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST</td>
<td>150 ppm</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>540 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>360 mg/m³</td>
<td>NIOSH REL</td>
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<tr>
<td>Indoxacarb (ISO)</td>
<td>173584-44-6</td>
<td>TWA</td>
<td>20 µg/m³</td>
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</tbody>
</table>

**Further information:** Skin sensitization

<table>
<thead>
<tr>
<th></th>
<th>Value type</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipe limit</td>
<td></td>
<td>100 µg/100 cm²</td>
<td>Internal</td>
</tr>
</tbody>
</table>

#### Engineering measures

Minimize workplace exposure concentrations.

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.

#### 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: Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Eye protection: Wear the following personal protective equipment: Safety glasses

Skin and body protection: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Wear the following personal protective equipment: If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: Clear white to yellow.
Odor: ether-like
Odor Threshold: No data available
pH: No data available
Melting point/freezing point: No data available
Initial boiling point and boiling range: No data available
Flash point: 92.3 °F / 33.5 °C
Evaporation rate: No data available
Flammability (solid, gas): Not applicable
Flammability (liquids): Not applicable
Upper explosion limit / Upper: No data available
### Section 6. Flammability Limit

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<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>
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</table>

### Section 7. Relative Density

<table>
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<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Relative density</td>
<td>1.096</td>
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</table>

### Section 8. Solubility

- **Water solubility**: No data available

### Section 9. Partition Coefficient

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<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
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</table>

### Section 10. Autoignition Temperature

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### Section 11. Decomposition Temperature

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### Section 12. Viscosity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### Section 13. Explosive Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
</tbody>
</table>

### Section 14. Oxidizing Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
</tbody>
</table>

### Section 15. Molecular Weight

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### Section 16. Particle Size

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particle size</td>
<td>No data available</td>
</tr>
</tbody>
</table>

### Section 10. Stability and Reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not classified as a reactivity hazard.</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Flammable liquid and vapor. Vapors may form explosive mixture with air. Can react with strong oxidizing agents.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat, flames and sparks.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Oxidizing agents</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>No hazardous decomposition products are known.</td>
</tr>
</tbody>
</table>

### Section 11. Toxicological Information

#### Information on likely routes of exposure

- **Inhalation**
- **Skin contact**
- **Ingestion**
- **Eye contact**
Acute toxicity
Harmful if swallowed or if inhaled.

**Product:**

- **Acute oral toxicity**: Acute toxicity estimate: 572.63 mg/kg
  Method: Calculation method
- **Acute inhalation toxicity**: Acute toxicity estimate: 3.29 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: Calculation method

**Components:**

**Permethrin (ISO):**

- **Acute oral toxicity**: LD50 (Rat): 480 - 554 mg/kg
- **Acute inhalation toxicity**: LC50 (Rat): 2.3 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
- **Acute dermal toxicity**: LD50 (Rabbit): > 2,000 mg/kg

**1-Methoxy-2-propanol:**

- **Acute oral toxicity**: LD50 (Rat): 4,016 mg/kg
- **Acute inhalation toxicity**: LC50 (Mouse): < 22.2 mg/l
  Exposure time: 6 h
  Test atmosphere: vapor
- **Acute dermal toxicity**: LD50 (Rat): > 2,000 mg/kg
  Assessment: The substance or mixture has no acute dermal toxicity

**Indoxacarb (ISO):**

- **Acute oral toxicity**: LD50 (Rat, female): 179 mg/kg
  Symptoms: Loss of reflexes, Breathing difficulties, Tremors
  LD50 (Rat, male): 843 mg/kg
- **Acute inhalation toxicity**: LC50 (Rat, female): 4.2 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
- **Acute dermal toxicity**: LD50 (Rat, male and female): > 5,000 mg/kg

**Skin corrosion/irritation**
Not classified based on available information.

**Components:**

- **Permethrin (ISO):**
  - Species: Rabbit
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Result: No skin irritation

1-Methoxy-2-propanol:
Species: Rabbit
Result: No skin irritation

Indoxacarb (ISO):
Result: No skin irritation

Serious eye damage/eye irritation
Not classified based on available information.

Components:

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

1-Methoxy-2-propanol:
Species: Rabbit
Result: No eye irritation

Indoxacarb (ISO):
Result: No eye irritation

Respiratory or skin sensitization

Skin sensitization
May cause an allergic skin reaction.

Respiratory sensitization
Not classified based on available information.

Components:

Permethrin (ISO):
Test Type: Buehler Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: positive
Assessment: Probability or evidence of skin sensitization in humans

1-Methoxy-2-propanol:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative
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Indoxacarb (ISO):
Test Type: Maximization Test
Species: Guinea pig
Result: positive

Germ cell mutagenicity
Not classified based on available information.

Components:

Permethrin (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
- Test Type: Chromosome aberration test in vitro
  Result: positive

Genotoxicity in vivo:
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  Species: Mouse
  Result: negative
- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  Species: Mouse
  Result: negative
- Test Type: Rodent dominant lethal test (germ cell) (in vivo)
  Species: Mouse
  Result: negative
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  Species: Rat
  Application Route: Intraperitoneal injection
  Result: negative
- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  Species: Mouse
  Application Route: Ingestion
  Result: positive

Germ cell mutagenicity - Assessment: Weight of evidence does not support classification as a germ cell mutagen.
## 1-Methoxy-2-propanol:

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Test Type: Chromosome aberration test in vitro</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Test Type: In vitro sister chromatid exchange assay in mammalian cells</td>
</tr>
<tr>
<td></td>
<td>Result: equivocal</td>
</tr>
<tr>
<td></td>
<td>Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)</td>
</tr>
<tr>
<td></td>
<td>Method: OECD Test Guideline 482</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Genotoxicity in vivo</th>
<th>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Species: Mouse</td>
</tr>
<tr>
<td></td>
<td>Application Route: Intraperitoneal injection</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
</tbody>
</table>

## Indoxacarb (ISO):

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Test Type: Chromosomal aberration</td>
</tr>
<tr>
<td></td>
<td>Test system: mammalian cells</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
<tr>
<td></td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
</tr>
<tr>
<td></td>
<td>Test system: Chinese hamster ovary cells</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Genotoxicity in vivo</th>
<th>Test Type: Micronucleus test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Species: Mouse</td>
</tr>
<tr>
<td></td>
<td>Cell type: Bone marrow</td>
</tr>
<tr>
<td></td>
<td>Result: negative</td>
</tr>
</tbody>
</table>

## Carcinogenicity

Not classified based on available information.

## Components:

### Permethrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

| Species | Mouse |
1-Methoxy-2-propanol:
Species: Rat
Application Route: inhalation (vapor)
Exposure time: 2 Years
Method: OECD Test Guideline 453
Result: negative

Indoxacarb (ISO):
Species: Rat, male and female
Application Route: oral (feed)
Exposure time: 2 Years
Frequency of Treatment: daily
Result: negative

Species: Mouse, male and female
Application Route: oral (feed)
Exposure time: 18 Months
Frequency of Treatment: daily
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
Not classified based on available information.

Components:
Permethrin (ISO):
Effects on fertility: Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: negative

Effects on fetal development: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Result: negative

1-Methoxy-2-propanol:
Effects on fertility: Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapor)
Method: OECD Test Guideline 416
Result: negative

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

**Indoxacarb (ISO):**
**Effects on fertility**
- Test Type: Two-generation study
- Species: Rat
- Application Route: Oral
- General Toxicity F1: NOAEL: 1.3 mg/kg body weight
  - Result: negative
  - Test Type: Two-generation study
  - Species: Rat
  - Application Route: Oral
  - General Toxicity Parent: NOAEL: 1.3 mg/kg body weight
  - General Toxicity F1: NOAEL: > 6.7 mg/kg body weight
  - Result: Embryotoxic effects and adverse effects on the offspring were detected.

**Effects on fetal development**
- Test Type: Development
- Species: Rat
- Developmental Toxicity: NOAEL: 2 mg/kg body weight
  - Result: No teratogenic effects.
  - Test Type: Development
  - Species: Rabbit
  - Application Route: Oral
  - Developmental Toxicity: NOAEL: 500 mg/kg body weight
  - Result: No adverse effects.
  - Test Type: Development
  - Species: Rat
  - Application Route: Oral
  - Developmental Toxicity: NOAEL: 10 mg/kg body weight
  - Test Type: Development
  - Species: Rat
  - Application Route: Oral
  - Developmental Toxicity: LOAEL: 100 mg/kg body weight

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

**Components:**
**1-Methoxy-2-propanol:**
- Assessment: May cause drowsiness or dizziness.
STOT-repeated exposure
Causes damage to organs (Blood, Nervous system, Heart) through prolonged or repeated exposure.

Components:

Indoxacarb (ISO):
Target Organs: Blood, Nervous system, Heart
Assessment: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Permethrin (ISO):
Species: Rat
NOAEL: 0.2201 mg/l
Application Route: Inhalation
Exposure time: 90 Days

Species: Rat
NOAEL: 175 mg/kg
Application Route: Ingestion
Exposure time: 90 Days

1-Methoxy-2-propanol:
Species: Rat
NOAEL: 919 mg/kg
Application Route: Ingestion
Exposure time: 35 Days

Species: Rat
NOAEL: 1.1 mg/l
Application Route: inhalation (vapor)
Exposure time: 2 y
Method: OECD Test Guideline 453

Species: Rabbit
NOAEL: 1.838 mg/kg
Application Route: Skin contact
Exposure time: 90 Days

Indoxacarb (ISO):
Species: Rat, male and female
NOAEL: 1.7 mg/kg
LOAEL: 4.1 mg/kg
Application Route: Oral
Exposure time: 90 d
Target Organs: Blood, Central nervous system

Species: Rat, male and female
NOAEL: 50 mg/kg
SAFETY DATA SHEET

Indoxacarb / Permethrin Formulation

Version 4.0  Revision Date: 09/16/2019  SDS Number: 27903-00013  Date of last issue: 06/05/2018
Date of first issue: 11/04/2014

| LOAEL | 500 mg/kg |
| Application Route | Dermal |
| Exposure time | 28 d |
| Target Organs | Blood |

| Species | Rat |
| NOAEL | 4.6 mg/m3 |
| LOAEL | 23 mg/m3 |
| Application Route | Inhalation |
| Exposure time | 4 Weeks |
| Target Organs | Blood, Lungs |

| Species | Rat, male and female |
| NOAEL | 1 mg/kg |
| LOAEL | 2 mg/kg |
| Application Route | Oral |
| Exposure time | 1 y |
| Target Organs | Blood |

| Species | Dog |
| NOAEL | 1 mg/kg |
| LOAEL | 2 mg/kg |
| Application Route | Oral |
| Exposure time | 1 y |
| Target Organs | Blood |

| Species | Mouse |
| NOAEL | 3 mg/kg |
| LOAEL | 14 mg/kg |
| Application Route | oral (feed) |
| Exposure time | 18 Months |
| Target Organs | Nervous system, Heart |

**Aspiration toxicity**
Not classified based on available information.

**Experience with human exposure**

**Components:**

**Indoxacarb (ISO):**

**General Information** : No human information is available.

**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Components:**

**Permethrin (ISO):**

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00079 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.0001 mg/l
Exposure time: 48 h
## Toxicity to algae/aquatic plants

<table>
<thead>
<tr>
<th>Compound</th>
<th>EC50 (Pseudokirchneriella subcapitata (green algae))</th>
<th>Exposure time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>&gt; 1.13 mg/l</td>
<td>72 h</td>
<td></td>
</tr>
<tr>
<td>Indoxacarb (ISO)</td>
<td>&gt; 0.6 mg/l</td>
<td>72 h</td>
<td>ISO 10253</td>
</tr>
<tr>
<td></td>
<td>0.0047 µg/l</td>
<td>21 d</td>
<td>OECD Test Guideline 211</td>
</tr>
<tr>
<td></td>
<td>6,745 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 209</td>
</tr>
<tr>
<td></td>
<td>0.46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Toxicity to fish (Chronic toxicity)

<table>
<thead>
<tr>
<th>Compound</th>
<th>NOEC (Danio rerio (zebra fish))</th>
<th>Exposure time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>0.00041 mg/l</td>
<td>35 d</td>
<td>OECD Test Guideline 210</td>
</tr>
<tr>
<td>Indoxacarb (ISO)</td>
<td>0.65 mg/l</td>
<td>96 h</td>
<td>OECD Test Guideline 203</td>
</tr>
<tr>
<td></td>
<td>0.9 mg/l</td>
<td>96 h</td>
<td>OECD Test Guideline 203</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Compound</th>
<th>NOEC (Daphnia magna (Water flea))</th>
<th>Exposure time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>0.0047 µg/l</td>
<td>21 d</td>
<td>OECD Test Guideline 211</td>
</tr>
<tr>
<td>Indoxacarb (ISO)</td>
<td>0.6 mg/l</td>
<td>48 h</td>
<td>OECD Test Guideline 202</td>
</tr>
</tbody>
</table>

## Toxicity to microorganisms

<table>
<thead>
<tr>
<th>Compound</th>
<th>EC50</th>
<th>Exposure time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>&gt; 1,000 mg/l</td>
<td>3 h</td>
<td></td>
</tr>
<tr>
<td>Indoxacarb (ISO)</td>
<td>&gt; 1,000 mg/l</td>
<td>3 h</td>
<td></td>
</tr>
</tbody>
</table>
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):

NOEC (Daphnia magna (Water flea)): 0.09 mg/l
Exposure time: 21 d

Persistence and degradability

Components:

Permethrin (ISO):
Biodegradability: Result: Not readily biodegradable.
Method: OECD Test Guideline 301F

1-Methoxy-2-propanol:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

Bioaccumulative potential

Components:

Permethrin (ISO):
Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 570

Partition coefficient: n-octanol/water: log Pow: 4.67

1-Methoxy-2-propanol:
Partition coefficient: n-octanol/water: log Pow: < 1

Indoxacarb (ISO):
Partition coefficient: n-octanol/water: log Pow: 4.65

Mobility in soil

Components:

Indoxacarb (ISO):
Distribution among environmental compartments: log Koc: 3.9

Other adverse effects
No data available

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 3092 |
| UN proper shipping name | 1-METHOXY-2-PROPANOL SOLUTION |
| Class | 3 |
| Packing group | III |
| Labels | Flammable Liquids |

**IATA-DGR**

| UN/ID No. | UN 3092 |
| Proper shipping name | 1-Methoxy-2-propanol solution |
| Class | 3 |
| Packing group | III |
| Labels | Flammable Liquids |
| Packing instruction (cargo aircraft) | 366 |
| Packing instruction (passenger aircraft) | 355 |

**IMDG-Code**

| UN number | UN 3092 |
| Proper shipping name | 1-METHOXY-2-PROPANOL SOLUTION |
| Class | 3 |
| Packing group | III |
| Labels | Flammable Liquids |
| 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 3092 |
| Proper shipping name | 1-Methoxy-2-propanol SOLUTION |
| Class | 3 |
| Packing group | III |
| Labels | FLAMMABLE LIQUID |
| ERG Code | 129 |
| Marine pollutant | yes(Permethrin (ISO), Indoxacarb (ISO)) |
SAFETY DATA SHEET

Indoxacarb / Permethrin Formulation

Version 4.0  Revision Date: 09/16/2019  SDS Number: 27903-00013  Date of last issue: 06/05/2018

Date of first issue: 11/04/2014

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
This material does not contain any components with a CERCLA RQ.

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)
- Acute toxicity (any route of exposure)
- Respiratory or skin sensitization
- Specific target organ toxicity (single or repeated exposure)

SARA 313:
The following components are subject to reporting levels established by SARA Title III, Section 313:

- Permethrin (ISO) 52645-53-1  >= 30 - < 50 %

US State Regulations

Pennsylvania Right To Know

- Permethrin (ISO) 52645-53-1
- 1-Methoxy-2-propanol 107-98-2
- Indoxacarb (ISO) 173584-44-6

California List of Hazardous Substances

- 1-Methoxy-2-propanol 107-98-2

California Permissible Exposure Limits for Chemical Contaminants

- 1-Methoxy-2-propanol 107-98-2

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:**

Flammability

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

**HMIS® IV:**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>FLAMMABILITY</th>
<th>PHYSICAL HAZARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</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)
**NIOSH REL**: USA. NIOSH Recommended Exposure Limits
**ACGIH / TWA**: 8-hour, time-weighted average
**ACGIH / STEL**: Short-term exposure limit
**NIOSH REL / TWA**: Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
**NIOSH REL / ST**: STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday

**AICS**: 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; **ELx**: Loading rate associated with x% response; **EmS**: Emergency Schedule; **ENCS**: Existing and New Chemical Substances (Japan); **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 sub-
### Sources of key data used to compile the Material Safety Data Sheet:

### Revision Date
09/16/2019

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 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.

US / Z8