SAFETY DATA SHEET

Indoxacarb / Permethrin Formulation

Version 4.3  Revision Date: 2021/08/27  SDS Number: 27892-00018  Date of last issue: 2021/03/17  Date of first issue: 2014/11/04

1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Indoxacarb / Permethrin Formulation

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

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

2. HAZARDS IDENTIFICATION

GHS classification of chemical product
Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin sensitisation : Category 1
Specific target organ toxicity - single exposure : Category 3
Specific target organ toxicity - repeated exposure : Category 1 (Blood, Nervous system, Heart)
Short-term (acute) aquatic hazard : Category 1
Long-term (chronic) aquatic hazard : Category 1

GHS label elements
Hazard pictograms :

Signal word : Danger
Hazard statements : H226 Flammable liquid and vapour.
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Precautionary statements:

**Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**
P301 + 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.
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.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

**Storage:**
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

**Disposal:**
P501 Dispose of contents/container to an approved waste disposal plant.

Other hazards which do not result in classification

Important symptoms and outlines of the emergency assumed:

- Vapours may form explosive mixture with air.
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3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
<th>ENCS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Permethrin (ISO)</td>
<td>52645-53-1</td>
<td>43.81</td>
<td>3-4010</td>
</tr>
<tr>
<td></td>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>&gt;= 40 - &lt; 50</td>
<td>7-97, 2-404</td>
</tr>
<tr>
<td></td>
<td>Indoxacarb (ISO)</td>
<td>173584-44-6</td>
<td>13.69</td>
<td></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. 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.

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. 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.

5. FIREFIGHTING MEASURES


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
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 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

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

Local/Total ventilation:
- If sufficient ventilation is unavailable, use with local exhaust ventilation.
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.
- Do not eat, drink or smoke when using this product.
- Take care to prevent spills, waste and minimize release to the environment.

Avoidance of contact:
- Oxidizing agents

Hygiene measures:
- If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
- When using do not eat, drink or smoke.
- Contaminated work clothing should not be allowed out of the workplace.
- Wash contaminated clothing before re-use.

Storage:
- Conditions for safe storage:
  - Keep in properly labelled containers.
  - Store locked up.
  - Keep tightly closed.
  - Keep in a cool, well-ventilated place.
  - Store in accordance with the particular national regulations.
  - Keep away from heat and sources of ignition.

Materials to avoid:
- Do not store with the following product types:
  - Oxidizing solids
  - Oxidizing liquids

Packaging material:
- Unsuitable material: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Reference concentration / 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>Indoxacarbin (ISO)</td>
<td>173584-44-6</td>
<td>TWA</td>
<td>20 µg/m³</td>
<td>Internal</td>
</tr>
</tbody>
</table>
Engineering measures

Further information: Skin sensitisation

<table>
<thead>
<tr>
<th></th>
<th>Wipe limit</th>
<th>100 µg/100 cm²</th>
<th>Internal</th>
</tr>
</thead>
</table>

Wipe limit: 100 µg/100 cm²

Internal

**Engineering measures**

Minimize workplace exposure concentrations.

If sufficient ventilation is unavailable, use with local exhaust ventilation.

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: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and 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).

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical state**

Liquid

**Colour**

Clear white to yellow.

**Odour**

Ether-like

**Odour Threshold**

No data available

**Melting point/freezing point**

No data available

**Boiling point, initial boiling point and boiling range**

No data available

**Flammability (solid, gas)**

Not applicable
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Flammability (liquids) : No data available

Lower explosion limit and upper explosion limit / flammability limit
Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Flash point : 33.5 °C

Decomposition temperature : No data available

pH : No data available

Evaporation rate : No data available

Auto-ignition temperature : No data available

Viscosity
  Viscosity, kinematic : No data available

Solubility(ies)
  Water solubility : No data available

Partition coefficient: n-octanol/water : Not applicable

Vapour pressure : No data available

Density and / or relative density
  Relative density : 1.096

Density : No data available

Relative vapour density : No data available

Explosive properties : Not explosive

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

Molecular weight : No data available

Particle characteristics
  Particle size : Not applicable

10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reac- : Flammable liquid and vapour.
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: 609.38 mg/kg
  Method: Calculation method
- **Acute inhalation toxicity:** Acute toxicity estimate: 4.48 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: vapour
- **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
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 sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.
Components:

**Permethrin (ISO):**
- Test Type: Buehler Test
- Exposure routes: Skin contact
- Species: Guinea pig
- Result: positive
- Assessment: Probability or evidence of skin sensitisation in humans

1-Methoxy-2-propanol:
- Test Type: Maximisation Test
- Exposure routes: Skin contact
- Species: Guinea pig
- Result: negative

**Indoxacarb (ISO):**
- Test Type: Maximisation 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
### Germ cell mutagenicity - Assessment

Weight of evidence does not support classification as a germ cell mutagen.

### 1-Methoxy-2-propanol:

**Genotoxicity in vitro**

- Test Type: Bacterial reverse mutation assay (AMES)  
  Result: negative
- Test Type: Chromosome aberration test in vitro  
  Result: negative
- Test Type: In vitro mammalian cell gene mutation test  
  Result: negative
- Test Type: In vitro sister chromatid exchange assay in mammalian cells  
  Result: equivocal
- Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
  Method: OECD Test Guideline 482  
  Result: negative

**Genotoxicity in vivo**

- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
  Species: Mouse  
  Application Route: Intraperitoneal injection  
  Result: negative

### Indoxacarb (ISO):

**Genotoxicity in vitro**

- Test Type: Bacterial reverse mutation assay (AMES)  
  Result: negative
- Test Type: Chromosomal aberration  
  Test system: mammalian cells  
  Result: negative
- Test Type: In vitro mammalian cell gene mutation test  
  Test system: Chinese hamster ovary cells
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Result: negative

Genotoxicity in vivo
Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Result: negative

Carcinogenicity
Not classified based on available information.

Components:

Permethrin (ISO):
Species: Rat
Result: negative

Species: Mouse
Result: negative

1-Methoxy-2-propanol:
Species: Rat
Application Route: inhalation (vapour)
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

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 foetal 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 (vapour)
  Method: OECD Test Guideline 416
  Result: negative

Effects on foetal development
: Test Type: Embryo-foetal development
  Species: Rat
  Application Route: inhalation (vapour)
  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 foetal 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 (vapour)
Exposure time: 2 yr
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
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 yr
Target Organs : Blood

Species : Dog
NOAEL : 1 mg/kg
LOAEL : 2 mg/kg
Application Route : Oral
Exposure time : 1 yr
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.
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 : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.13 mg/l
Exposure time: 72 h
EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0023 mg/l
Exposure time: 72 h

M-Factor (Acute aquatic toxicity): 10,000
Toxicity to fish (Chronic toxicity): NOEC (Danio rerio (zebra fish)): 0.00041 mg/l
Exposure time: 35 d
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (Daphnia magna (Water flea)): 0.0047 µg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity): 10,000
Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 3 h

1-Methoxy-2-propanol:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 6,812 mg/l
Exposure time: 96 h
Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 23,300 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Skeletonema costatum (marine diatom)): 6,745 mg/l
Exposure time: 72 h
Method: ISO 10253

Toxicity to microorganisms : IC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Indoxacarb (ISO):
Toxicity to fish
- LC50 (Oncorhynchus mykiss (rainbow trout)): 0.65 mg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 203
- LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.9 mg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
- EC50 (Daphnia magna (Water flea)): 0.6 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants
- EC50 (Pseudokirchneriella subcapitata (green algae)): > 0.6 mg/l
  Exposure time: 72 h
- NOEC (Pseudokirchneriella subcapitata (green algae)): 0.46 mg/l
  Exposure time: 72 h

M-Factor (Acute aquatic toxicity)
- 1

M-Factor (Chronic aquatic toxicity)
- 1

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
octanol/water

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

Hazardous to the ozone layer
Not applicable

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: Dispose of in accordance with local regulations.
Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 3092
Proper shipping name: 1-METHOXY-2-PROpanol SOLUTION
Class: 3
Packing group: III
Labels:

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
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Class: 3
Packing group: III
Labels: 3
EmS Code: F-E, S-D
Marine pollutant: yes

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

National Regulations
Refer to section 15 for specific national regulation.

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

Related Regulations

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

Chemical Substance Control Law
Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

Industrial Safety and Health Law
Harmful Substances Prohibited from Manufacture
Not applicable

Harmful Substances Required Permission for Manufacture
Not applicable

Substances Prevented From Impairment of Health
Not applicable

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

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

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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol monomethyl ether</td>
<td>496</td>
<td>&gt;=40 - &lt;50</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
</table>

Propylene glycol monomethyl ether | 496

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

Ordinance on Prevention of Lead Poisoning
Not applicable

Ordinance on Prevention of Tetraalkyl Lead Poisoning
Not applicable

Ordinance on Prevention of Organic Solvent Poisoning
Not applicable

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

Poisonous and Deleterious Substances Control Law
Not applicable

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

Class I Designated Chemical Substances

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-phenoxbenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate</td>
<td>350</td>
<td>44</td>
</tr>
<tr>
<td>Indoxacarb</td>
<td>430</td>
<td>14</td>
</tr>
</tbody>
</table>

High Pressure Gas Safety Act
Not applicable

Explosive Control Law
Not applicable

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

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

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

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

Waste Disposal and Public Cleansing Law
Specially Controlled Industrial Waste

The components of this product are reported in the following inventories:
16. OTHER INFORMATION

Further information

Date format: yyyy/mm/dd

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

AICS - 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 Chemicals 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; 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; TECI - Thailand Existing Chemicals 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; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for
safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS 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.

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