

# SAFETY DATA SHEET



## PerfectMatch®

Version 1.0      Revision Date: 06/23/2022      SDS Number: 800080005412      Date of last issue: -  
Date of first issue: 06/23/2022

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Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

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### SECTION 1. IDENTIFICATION

Product name : PerfectMatch®

#### Manufacturer or supplier's details

#### COMPANY IDENTIFICATION

**Manufacturer/importer** : CORTEVA AGRISCIENCE LLC  
9330 ZIONSVILLE RD  
INDIANAPOLIS, IN, 46268-1053  
UNITED STATES

**Customer Information Number** : 800-992-5994

**E-mail address** : customerinformation@corteva.com

**Emergency telephone** : INFOTRAC (CONTRACT 84224).  
800-992-5994 or 317-337-6009

#### Recommended use of the chemical and restrictions on use

Recommended use : End use herbicide product

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Eye irritation : Category 2A

Skin sensitization : Sub-category 1B

Carcinogenicity : Category 2

Aspiration hazard : Category 1

#### GHS label elements

Hazard pictograms :



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Signal Word : Danger

Hazard Statements : H304 May be fatal if swallowed and enters airways.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H351 Suspected of causing cancer.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P261 Avoid breathing mist or vapors.  
P264 Wash skin thoroughly after handling.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
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.  
P331 Do NOT induce vomiting.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: Get medical advice/ attention.  
P363 Wash contaminated clothing before reuse.

**Storage:**  
P405 Store locked up.

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

### Other hazards

None known.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

| Chemical name                    | CAS-No.    | Concentration (% w/w) |
|----------------------------------|------------|-----------------------|
| fluroxypyr-meptyl (ISO)          | 81406-37-3 | 12.4                  |
| Clopyralid monoethanolamine salt | 57754-85-5 | 11.3                  |
| Cloquintocet                     | 88349-88-6 | 2.57                  |

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|  |             |              |
|--|-------------|--------------|
| pyroxsulam (ISO)   | 422556-08-9 | 1.2          |
| Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified | 64742-94-5  | >= 30 - < 40 |
| Propylene glycol   | 57-55-6     | >= 3 - < 10  |
| naphthalene  | 91-20-3     | >= 3 - < 10  |
| 1,2,4-trimethylbenzene   | 95-63-6     | >= 1 - < 3   |

Actual concentration is withheld as a trade secret

### SECTION 4. FIRST AID MEASURES

- If inhaled : Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.
- In case of skin contact : Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.  
Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.  
Suitable emergency safety shower facility should be available in work area.
- In case of eye contact : Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.  
Suitable emergency eye wash facility should be available in work area.
- If swallowed : Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.
- Most important symptoms and effects, both acute and delayed : None known.
- Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection).  
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
- Notes to physician : The decision of whether to induce vomiting or not should be made by a physician.  
If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.  
No specific antidote.  
Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.  
Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

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**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health. Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.
- Combustion products may include and are not limited to:  
Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Hydrogen chloride gas
- Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.  
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- 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 : Ensure adequate ventilation.  
Use personal protective equipment.  
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.  
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.  
Prevent from entering into soil, ditches, sewers, underwater.  
See Section 12, Ecological Information.
- Methods and materials for containment and cleaning up : Clean up remaining materials from spill with suitable absorbent.

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Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.

For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped,

Recovered material should be stored in a vented container. The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.

Keep in suitable, closed containers for disposal.

Wipe up with absorbent material (e.g. cloth, fleece).

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

See Section 13, Disposal Considerations, for additional information.

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**SECTION 7. HANDLING AND STORAGE**

- Advice on safe handling : Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- Do not breathe vapors/dust.
- Do not smoke.
- Handle in accordance with good industrial hygiene and safety practice.
- Avoid exposure - obtain special instructions before use.
- Smoking, eating and drinking should be prohibited in the application area.
- Do not get on skin or clothing.
- Avoid inhalation of vapor or mist.
- Do not swallow.
- Do not get in eyes.
- Avoid contact with skin and eyes.
- Keep container tightly closed.
- Take care to prevent spills, waste and minimize release to the environment.
- Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- Conditions for safe storage : Store in a closed container.
- Containers which are opened must be carefully resealed and kept upright to prevent leakage.
- Keep in properly labeled containers.
- Store in accordance with the particular national regulations.
- Materials to avoid : Strong oxidizing agents
- Packaging material : Unsuitable material: None known.

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**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters**

| Components   | CAS-No.     | Value type<br>(Form of exposure) | Control parameters / Permissible concentration     | Basis       |
|--|-------------|----------------------------------|--|-------------|
| Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified | 64742-94-5  | TWA                              | 100 mg/m <sup>3</sup>                              | Corteva OEL |
|  |             | STEL                             | 300 mg/m <sup>3</sup>                              | Corteva OEL |
|  |             | TWA                              | 200 mg/m <sup>3</sup><br>(total hydrocarbon vapor) | ACGIH       |
| fluroxypyr-meptyl (ISO)  | 81406-37-3  | TWA                              | 10 mg/m <sup>3</sup>                               | Dow IHG     |
| Propylene glycol   | 57-55-6     | TWA                              | 10 mg/m <sup>3</sup>                               | US WEEL     |
| naphthalene  | 91-20-3     | TWA                              | 10 ppm   | Dow IHG     |
|  |             | STEL                             | 15 ppm   | Dow IHG     |
|  |             | TWA                              | 10 ppm   | ACGIH       |
|  |             | TWA                              | 10 ppm<br>50 mg/m <sup>3</sup>                     | OSHA Z-1    |
|  |             | TWA                              | 10 ppm<br>50 mg/m <sup>3</sup>                     | OSHA P0     |
|  |             | STEL                             | 15 ppm<br>75 mg/m <sup>3</sup>                     | OSHA P0     |
| 1,2,4-trimethylbenzene   | 95-63-6     | TWA                              | 25 ppm   | ACGIH       |
|  |             | TWA                              | 25 ppm<br>125 mg/m <sup>3</sup>                    | OSHA P0     |
| pyroxsulam (ISO)   | 422556-08-9 | TWA                              | 5 mg/m <sup>3</sup>                                | Dow IHG     |

**Engineering measures** : Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.  
Local exhaust ventilation may be necessary for some operations.

**Personal protective equipment**

**Respiratory protection** : Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

**Hand protection**

**Remarks** : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber

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("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Eye protection : Use chemical goggles.  
 Skin and body protection : Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|  |  |
|--|--|
| Appearance                                       | : Liquid.  |
| Color  | : Tan  |
| Odor   | : Characteristic   |
| Odor Threshold                                   | : No data available  |
| pH   | : 5.07 (75.6 °F / 24.2 °C)<br>Method: pH Electrode                                   |
| Melting point/range                              | : Not applicable   |
| Freezing point                                   | : No data available  |
| Boiling point/boiling range                      | : No data available  |
| Flash point                                      | : > 212 °F / > 100 °C<br><br>Method: Pensky-Martens Closed Cup ASTM D 93, closed cup |
| Evaporation rate                                 | : No data available  |
| Flammability (solid, gas)                        | : No data available  |
| Upper explosion limit / Upper flammability limit | : No data available  |
| Lower explosion limit / Lower flammability limit | : No data available  |
| Vapor pressure                                   | : No data available  |
| Relative vapor density                           | : No data available  |
| Relative density                                 | : No data available  |
| Density  | : 1.0468 g/cm <sup>3</sup> (68 °F / 20 °C)   |

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Method: Digital density meter

Solubility(ies)  
Water solubility : No data available

Autoignition temperature : No data available

Viscosity  
Viscosity, dynamic : No data available

Explosive properties : No

Oxidizing properties : No significant increase (>5C) in temperature.

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.

Chemical stability : No decomposition if stored and applied as directed.  
Stable under normal conditions.

Possibility of hazardous reactions : Stable under recommended storage conditions.  
No hazards to be specially mentioned.  
None known.

Conditions to avoid : None known.

Incompatible materials : None.

Hazardous decomposition products : Decomposition products depend upon temperature, air supply and the presence of other materials.  
Decomposition products can include and are not limited to:  
Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Hydrogen chloride gas

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**SECTION 11. TOXICOLOGICAL INFORMATION****Acute toxicity****Product:**

Acute oral toxicity : LD50 (Rat, female): > 5,000 mg/kg  
Method: OECD Test Guideline 423

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.81 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg  
Method: OECD Test Guideline 402

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**Components:****fluroxypyr-meptyl (ISO):**

- Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity : LC50 (Rat, male and female): > 1.16 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Maximum attainable concentration.
- Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

**Clopyralid monoethanolamine salt:**

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
- Acute inhalation toxicity : LC50 (Rat): > 2.6 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Maximum attainable concentration.
- Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute dermal toxicity

**Cloquintocet:**

- Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute oral toxicity
- Acute inhalation toxicity : LC50 (Rat, male and female): > 6.11 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Symptoms: No deaths occurred at this concentration.  
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

**pyroxsulam (ISO):**

- Acute oral toxicity : LD50 (Rat, female): > 5,000 mg/kg

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Symptoms: No deaths occurred at this concentration.  
 Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 5.12 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Symptoms: No deaths occurred at this concentration.  
 Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg  
 Symptoms: No deaths occurred at this concentration.  
 Assessment: The substance or mixture has no acute dermal toxicity

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 4.8 mg/l  
 Exposure time: 4 h  
 Test atmosphere: dust/mist  
 Assessment: The substance or mixture has no acute inhalation toxicity

LC50 (Rat): > 0.2 mg/l  
 Exposure time: 4 h  
 Test atmosphere: vapor  
 Symptoms: No deaths occurred following exposure to a saturated atmosphere.  
 Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg  
 Assessment: The substance or mixture has no acute dermal toxicity

**Propylene glycol:**

Acute oral toxicity : LD50 (Rat): > 20,000 mg/kg

Acute inhalation toxicity : LC50 (Rabbit): 317.042 mg/l  
 Exposure time: 2 h  
 Test atmosphere: dust/mist  
 Symptoms: No deaths occurred at this concentration.  
 Assessment: The substance or mixture has no acute inhalation toxicity  
 Remarks: Mist may cause irritation of upper respiratory tract (nose and throat).

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
 Symptoms: No deaths occurred at this concentration.  
 Assessment: The substance or mixture has no acute dermal toxicity

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**naphthalene:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Lethal Dose (Humans): 5 - 15 grams

Method: Estimated.

Remarks: Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen.

Ingestion of naphthalene by humans has caused hemolytic anemia.

Toxicity from swallowing may be greater in humans than in animals.

In humans, symptoms may include:

Confusion.

Lethargy.

Muscle spasms or twitches.

Convulsions.

Coma.

Acute inhalation toxicity : Remarks: Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

Excessive exposure may cause lung injury.

Signs and symptoms of excessive exposure may include:

Headache.

Confusion.

Sweating.

Nausea and/or vomiting.

LC50 (Rat): > 0.41 mg/l

Exposure time: 4 h

Test atmosphere: vapor

Symptoms: The LC50 value is greater than the Maximum Attainable Concentration.

Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2,500 mg/kg

Remarks: Human case reports suggest Naphthalene may be absorbed through the skin in toxic amounts, especially in children.

LD50 (Rabbit): > 2,500 mg/kg

**1,2,4-trimethylbenzene:**

Acute oral toxicity : LD50 (Rat): > 3,400 mg/kg

Acute inhalation toxicity : Remarks: Prolonged excessive exposure may cause serious adverse effects, even death.

Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

May cause central nervous system effects.

Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50 (Rat): 18 mg/l

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Exposure time: 4 h  
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

**Skin corrosion/irritation****Product:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Mild skin irritation

**Components:****fluroxypyr-meptyl (ISO):**

Species : Rabbit  
Result : No skin irritation

**Propylene glycol:**

Species : Rabbit  
Result : No skin irritation

**1,2,4-trimethylbenzene:**

Result : Skin irritation

**Serious eye damage/eye irritation****Product:**

Species : Rabbit  
Result : Eye irritation  
Method : OECD Test Guideline 405

**Components:****Clopyralid monoethanolamine salt:**

Species : Rabbit  
Result : No eye irritation

**pyroxsulam (ISO):**

Species : Rabbit  
Result : No eye irritation

**Propylene glycol:**

Species : Rabbit  
Result : No eye irritation

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**1,2,4-trimethylbenzene:**

Result : Eye irritation

**Respiratory or skin sensitization****Product:**

Test Type : Local lymph node assay  
 Species : Mouse  
 Assessment : The product is a skin sensitizer, sub-category 1B.  
 Method : OECD Test Guideline 429  
 Remarks : Has demonstrated the potential for contact allergy in mice.

Remarks : For respiratory sensitization:  
 No relevant data found.

**Components:****fluroxypyr-meptyl (ISO):**

Species : Guinea pig  
 Assessment : Does not cause skin sensitization.

**Clopyralid monoethanolamine salt:**

Species : Mouse  
 Assessment : Does not cause skin sensitization.

**Cloquintocet:**

Species : Mouse  
 Result : Does not cause skin sensitization.

**pyroxsulam (ISO):**

Species : Guinea pig  
 Assessment : The product is a skin sensitizer, sub-category 1B.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Remarks : Did not cause allergic skin reactions when tested in humans.

Remarks : For respiratory sensitization:  
 No relevant data found.

**Propylene glycol:**

Species : human  
 Assessment : Does not cause skin sensitization.

**naphthalene:**

Assessment : Does not cause skin sensitization.  
 Remarks : Skin contact may cause an allergic skin reaction in a small proportion of individuals.  
 Did not cause allergic skin reactions when tested in guinea pigs.

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Remarks : For respiratory sensitization:  
No relevant data found.

**1,2,4-trimethylbenzene:**

Remarks : For similar material(s):  
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:  
No relevant data found.

**Germ cell mutagenicity****Components:****fluroxypyr-meptyl (ISO):**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

**Clopyralid monoethanolamine salt:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

**Cloquintocet:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative.

**pyroxsulam (ISO):**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

**Propylene glycol:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

**naphthalene:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative in some cases and positive in other cases.

**1,2,4-trimethylbenzene:**

Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

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**Carcinogenicity****Components:****fluroxypyr-meptyl (ISO):**

Carcinogenicity - Assessment : For similar active ingredient(s)., Fluroxypyr., Did not cause cancer in laboratory animals.

**Clopyralid monoethanolamine salt:**

Carcinogenicity - Assessment : Similar formulations did not cause cancer in laboratory animals.

**Cloquintocet:**

Carcinogenicity - Assessment : For similar active ingredient(s)., Did not cause cancer in laboratory animals.

**pyroxsulam (ISO):**

Carcinogenicity - Assessment : There was equivocal evidence of carcinogenic activity in long-term bioassays. These effects are not believed to be relevant to humans.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Carcinogenicity - Assessment : Contains naphthalene which has caused cancer in some laboratory animals., In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

**Propylene glycol:**

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

**naphthalene:**

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies  
 Has caused cancer in some laboratory animals., In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative.

**IARC** Group 2B: Possibly carcinogenic to humans  
 naphthalene 91-20-3

**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** Reasonably anticipated to be a human carcinogen  
 naphthalene 91-20-3

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**Reproductive toxicity****Components:****fluroxypyr-meptyl (ISO):**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

**Clopyralid monoethanolamine salt:**

Reproductive toxicity - Assessment : In animal studies, active ingredient did not interfere with reproduction. Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure.

**Cloquintocet:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. For similar active ingredient(s)., Did not cause birth defects or any other fetal effects in laboratory animals.

**pyroxsulam (ISO):**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects or any other fetal effects in laboratory animals.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Reproductive toxicity - Assessment : Did not cause birth defects or any other fetal effects in laboratory animals.

**Propylene glycol:**

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction., In animal studies, did not interfere with fertility. Did not cause birth defects or any other fetal effects in laboratory animals.

**naphthalene:**

Reproductive toxicity - Assessment : Available data are inadequate to determine effects on reproduction. Did not cause birth defects in laboratory animals.

**1,2,4-trimethylbenzene:**

Reproductive toxicity - Assessment : For similar material(s);, In animal studies, did not interfere with reproduction. Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.



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**STOT-single exposure****Product:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Components:****Clopyralid monoethanolamine salt:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Cloquintocet:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**Propylene glycol:**

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

**naphthalene:**

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

**1,2,4-trimethylbenzene:**

Routes of exposure : Inhalation  
Target Organs : Respiratory Tract  
Assessment : May cause respiratory irritation.

**Repeated dose toxicity****Components:****fluroxypyr-meptyl (ISO):**

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

**Clopyralid monoethanolamine salt:**

Remarks : Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

**Cloquintocet:**

Remarks : Based on available data, repeated exposures are not anti-

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pated to cause significant adverse effects.

**pyroxsulam (ISO):**

Remarks : In animals, effects have been reported on the following organs:  
Liver.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Remarks : In animals, effects have been reported on the following organs:  
Lung.  
Gastrointestinal tract.  
Thyroid.  
Urinary tract.  
Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.  
Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

**Propylene glycol:**

Remarks : In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

**naphthalene:**

Remarks : Observations in animals include:  
Respiratory effects.  
Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen.  
Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.  
Ingestion of naphthalene by humans has caused hemolytic anemia.

**1,2,4-trimethylbenzene:**

Remarks : In animals, effects have been reported on the following organs:  
Respiratory tract.

**Aspiration toxicity****Product:**

May be fatal if swallowed and enters airways.

**Components:****fluroxypyr-meptyl (ISO):**

Based on physical properties, not likely to be an aspiration hazard.

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**Clopyralid monoethanolamine salt:**

Based on available information, aspiration hazard could not be determined.

**Cloquintocet:**

Based on physical properties, not likely to be an aspiration hazard.

**pyroxsulam (ISO):**

Based on physical properties, not likely to be an aspiration hazard.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

May be fatal if swallowed and enters airways.

**Propylene glycol:**

Based on physical properties, not likely to be an aspiration hazard.

**naphthalene:**

Based on physical properties, not likely to be an aspiration hazard.

**1,2,4-trimethylbenzene:**

May be harmful if swallowed and enters airways.

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**SECTION 12. ECOLOGICAL INFORMATION**
**Ecotoxicity****Components:****fluroxypyr-meptyl (ISO):**

Toxicity to fish : Remarks: Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.225 mg/l  
 Exposure time: 96 h  
 Test Type: semi-static test  
 Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.183 mg/l  
 Exposure time: 48 h  
 Test Type: semi-static test  
 Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (diatom Navicula sp.): 0.24 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Method: OECD Test Guideline 201 or Equivalent

EbC50 (alga Scenedesmus sp.): > 0.47 mg/l  
 Exposure time: 72 h

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ErC50 (Selenastrum capricornutum (green algae)): > 1.410 mg/l  
Exposure time: 96 h

ErC50 (Myriophyllum spicatum): 0.075 mg/l  
Exposure time: 14 d

NOEC (Myriophyllum spicatum): 0.031 mg/l  
Exposure time: 14 d

M-Factor (Acute aquatic toxicity) : 10  
 Toxicity to fish (Chronic toxicity) : NOEC (Rainbow trout (Oncorhynchus mykiss)): 0.32 mg/l  
 M-Factor (Chronic aquatic toxicity) : 1  
 Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg  
 Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).  
 oral LD50 (Colinus virginianus (Bobwhite quail)): > 2000 mg/kg bodyweight.  
 Exposure time: 5 d  
 dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5000 mg/kg diet.  
 oral LD50 (Apis mellifera (bees)): > 100 micrograms/bee  
 Exposure time: 48 h  
 contact LD50 (Apis mellifera (bees)): > 100 micrograms/bee  
 Exposure time: 48 h

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.  
 Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**Clopyralid monoethanolamine salt:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l  
 Exposure time: 96 h  
 Test Type: static test  
 Method: OECD Test Guideline 203 or Equivalent  
 Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
 Exposure time: 48 h  
 Test Type: static test  
 Method: OECD Test Guideline 202 or Equivalent  
 Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 30 mg/l

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Exposure time: 72 h

ErC50 (Myriophyllum spicatum): > 3 mg/l

Exposure time: 14 d

Remarks: For similar material(s):

NOEC (Myriophyllum spicatum): 0.0089 mg/l

Exposure time: 14 d

Remarks: For similar material(s):

- M-Factor (Chronic aquatic toxicity) : 10
- Toxicity to terrestrial organisms : oral LD50 (Anas platyrhynchos (Mallard duck)): 1465 - 2000 mg/kg bodyweight.  
Exposure time: 14 d  
Remarks: For similar active ingredient(s).
- dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5000 mg/kg diet.  
Exposure time: 8 d  
Remarks: For similar active ingredient(s).
- contact LD50 (Apis mellifera (bees)): > 100 micrograms/bee  
Exposure time: 48 d  
Remarks: For similar active ingredient(s).
- oral LD50 (Apis mellifera (bees)): > 98.1 micrograms/bee  
Exposure time: 48 d  
Remarks: For similar active ingredient(s).

**Ecotoxicology Assessment**

Acute aquatic toxicity : Toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**Cloquintocet:**

Toxicity to fish : LC50 (Sheepshead minnow (Cyprinodon variegatus)): > 120 mg/l  
Exposure time: 96 h  
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Oyster shell (Crassostrea virginica)): > 110 mg/l  
Exposure time: 96 h

LC50 (Mysid shrimp (Mysidopsis bahia)): > 120 mg/l

Exposure time: 96 h

Test Type: semi-static test

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 66.5 mg/l  
Exposure time: 72 h  
Test Type: static test

ErC50 (Skeletonema costatum (marine diatom)): 12.5 mg/l

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- Exposure time: 96 h
- ErC50 (Anabaena flos-aquae (cyanobacterium)): 23.7 mg/l  
Exposure time: 96 h
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.143 mg/l  
Exposure time: 33 d  
Test Type: flow-through test
- Toxicity to terrestrial organisms : Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
- oral LD50 (Colinus virginianus (Bobwhite quail)): > 2250 mg/kg bodyweight.
- contact LD50 (Apis mellifera (bees)): > 200 µg/bee  
Exposure time: 48 h
- pyroxsulam (ISO):**
- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 87.0 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203 or Equivalent
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202 or Equivalent
- Toxicity to algae/aquatic plants : EC50 (Lemna minor (duckweed)): 0.00257 mg/l  
End point: Biomass  
Exposure time: 7 d  
Method: OECD 221.
- M-Factor (Acute aquatic toxicity) : 100
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 3.2 - 10.1 mg/l  
End point: survival  
Exposure time: 40 d  
Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 10.4 mg/l  
End point: survival  
Exposure time: 21 d  
Test Type: static test
- M-Factor (Chronic aquatic toxicity) : 100
- Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l  
Exposure time: 3 h
- Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 10,000 mg/kg  
Exposure time: 14 d

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Toxicity to terrestrial organisms : LC50 (Colinus virginianus (Bobwhite quail)): > 5000 mg/kg diet.  
Exposure time: 8 d

LD50 (Colinus virginianus (Bobwhite quail)): > 2000 mg/kg bodyweight.

oral LD50 (Apis mellifera (bees)): > 107.4 micrograms/bee  
Exposure time: 48 h

contact LD50 (Apis mellifera (bees)): > 100 micrograms/bee  
Exposure time: 48 h

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Toxicity to fish : Remarks: Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

LC50 (Gambusia affinis (Mosquito fish)): 811 mg/l  
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (Algae): 21 - 165 mg/l  
Exposure time: 72 h

**Propylene glycol:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : LC50 (Ceriodaphnia dubia (water flea)): 18,340 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 19,000 mg/l  
End point: Growth rate inhibition  
Exposure time: 96 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 13,020 mg/l  
End point: number of offspring  
Exposure time: 7 d  
Test Type: semi-static test

Toxicity to microorganisms : NOEC (Pseudomonas putida): > 20,000 mg/l

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Exposure time: 18 h

**naphthalene:**

Toxicity to fish : Remarks: Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.11 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.6 - 24.1 mg/l  
Exposure time: 48 h  
Test Type: static test

Toxicity to algae/aquatic plants : ErC50 (Skeletonema costatum (marine diatom)): 0.4 mg/l  
Exposure time: 72 h  
Test Type: Growth rate inhibition

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (Other): 0.37 mg/l  
End point: mortality  
Exposure time: 40 d  
Test Type: flow-through

M-Factor (Chronic aquatic toxicity) : 1

**Ecotoxicology Assessment**

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**1,2,4-trimethylbenzene:**

Toxicity to fish : Remarks: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50 (Pimephales promelas (fathead minnow)): 7.7 mg/l  
Exposure time: 96 h  
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.6 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 2.356 mg/l  
Exposure time: 96 h

**Ecotoxicology Assessment**

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.



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**Persistence and degradability****Components:****fluroxypyr-meptyl (ISO):**

Biodegradability : Result: Not biodegradable  
Remarks: Material is not readily biodegradable according to OECD/EEC guidelines.

Biodegradation: 32 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D or Equivalent  
Remarks: 10-day Window: Fail

ThOD : 2.2 kg/kg

Stability in water : Test Type: Hydrolysis  
Degradation half life (half-life): 454 d

**Clopyralid monoethanolamine salt:**

Biodegradability : Result: Not biodegradable  
Remarks: For similar active ingredient(s).  
Clopyralid.

**pyroxsulam (ISO):**

Biodegradability : aerobic  
Biodegradation: 20 - 30 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B or Equivalent  
Remarks: 10-day Window: Fail

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Biodegradability : Result: Not biodegradable  
Remarks: Material is not readily biodegradable according to OECD/EEC guidelines.

**Propylene glycol:**

Biodegradability : aerobic  
Result: Readily biodegradable.  
Biodegradation: 81 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F or Equivalent  
Remarks: 10-day Window: Pass

Biodegradation: 96 %  
Exposure time: 64 d  
Method: OECD Test Guideline 306 or Equivalent  
Remarks: 10-day Window: Not applicable

Biochemical Oxygen Demand (BOD) : 69.000 %  
Incubation time: 5 d

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70.000 %  
Incubation time: 10 d

86.000 %  
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 1.53 kg/kg  
ThOD : 1.68 kg/kg

Photodegradation : Rate constant: 1.28E-11 cm<sup>3</sup>/s  
Method: Estimated.

**naphthalene:**

Biodegradability : Remarks: Biodegradation under aerobic static laboratory conditions is high (BOD<sub>20</sub> or BOD<sub>28</sub>/ThOD > 40%).

Biochemical Oxygen Demand (BOD) : 57.000 %  
Incubation time: 5 d

71.000 %  
Incubation time: 10 d

71.000 %  
Incubation time: 20 d

ThOD : 3.00 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)  
Sensitizer: OH radicals  
Concentration: 1,500,000 1/cm<sup>3</sup>  
Rate constant: 2.16E-11 cm<sup>3</sup>/s  
Method: Estimated.

**1,2,4-trimethylbenzene:**

Biodegradability : Result: Readily biodegradable.  
Remarks: Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

Biodegradation: 100 %  
Exposure time: 1 d

ThOD : 3.19 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)  
Sensitizer: OH radicals  
Rate constant: 1.670E-11 cm<sup>3</sup>/s  
Method: Estimated.

**Bioaccumulative potential****Components:**

**fluroxypyr-meptyl (ISO):**

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Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)  
Bioconcentration factor (BCF): 26  
Method: Measured

Partition coefficient: n-octanol/water :  
log Pow: 5.04  
Method: Measured  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Clopyralid monoethanolamine salt:**

Partition coefficient: n-octanol/water : Remarks: For similar active ingredient(s).  
Clopyralid.  
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Cloquintocet:**

Partition coefficient: n-octanol/water : log Pow: 2.12  
Method: Estimated.  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**pyroxsulam (ISO):**

Partition coefficient: n-octanol/water :  
log Pow: -1.01  
Method: Measured  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Partition coefficient: n-octanol/water : Remarks: For similar material(s).  
Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**Propylene glycol:**

Bioaccumulation : Bioconcentration factor (BCF): 0.09  
Method: Estimated.

Partition coefficient: n-octanol/water : log Pow: -1.07  
Method: Measured  
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**naphthalene:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): 40 - 300  
Exposure time: 28 d  
Method: Measured

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Partition coefficient: n-octanol/water : log Pow: 3.3  
Method: Measured  
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**1,2,4-trimethylbenzene:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 33 - 275  
Exposure time: 56 d  
Concentration: 0.2 mg/l  
Method: Measured

Partition coefficient: n-octanol/water : log Pow: 3.63  
Method: Measured  
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Mobility in soil****Components:****fluroxypyr-meptyl (ISO):**

Distribution among environmental compartments : Koc: 6200 - 43000  
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

**Clopyralid monoethanolamine salt:**

Distribution among environmental compartments : Remarks: For similar active ingredient(s).  
Clopyralid.  
Potential for mobility in soil is very high (Koc between 0 and 50).

**Cloquintocet:**

Distribution among environmental compartments : Koc: 206  
Method: Estimated.  
Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).

**pyroxsulam (ISO):**

Distribution among environmental compartments : Koc: <= 42  
Method: Estimated.  
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Distribution among environmental compartments : Remarks: No relevant data found.

**Propylene glycol:**

Distribution among environmental compartments : Koc: < 1  
Method: Estimated.

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Remarks: Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

**naphthalene:**

Distribution among environmental compartments : Koc: 240 - 1300  
Method: Measured  
Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).

**1,2,4-trimethylbenzene:**

Distribution among environmental compartments : Koc: 720  
Method: Estimated.  
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

**Other adverse effects****Components:****fluroxypyr-meptyl (ISO):**

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

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Clopyralid monoethanolamine salt:**

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

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Cloquintocet:**

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

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**pyroxsulam (ISO):**

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

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Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**Propylene glycol:**

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

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**naphthalene:**

Results of PBT and vPvB assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**1,2,4-trimethylbenzene:**

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

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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**SECTION 14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

|                      |   |  |
|----------------------|---|--|
| UN number            | : | UN 3082  |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Fluroxypyr 1-methylheptyl ester) |
| Class                | : | 9  |
| Packing group        | : | III  |
| Labels               | : | 9  |

**IATA-DGR**

|  |   |  |
|--|---|--|
| UN/ID No.                                | : | UN 3082  |
| Proper shipping name                     | : | Environmentally hazardous substance, liquid, n.o.s.<br>(Fluroxypyr 1-methylheptyl ester) |
| Class                                    | : | 9  |
| Packing group                            | : | III  |
| Labels                                   | : | Miscellaneous  |
| Packing instruction (cargo aircraft)     | : | 964  |
| Packing instruction (passenger aircraft) | : | 964  |

**IMDG-Code**

|                      |   |  |
|----------------------|---|--|
| UN number            | : | UN 3082  |
| Proper shipping name | : | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Fluroxypyr 1-methylheptyl ester) |
| Class                | : | 9  |
| Packing group        | : | III  |
| Labels               | : | 9  |
| EmS Code             | : | F-A, S-F   |
| Marine pollutant     | : | yes  |
| Remarks              | : | Stowage category A   |

**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 3082  |
| Proper shipping name | : | Environmentally hazardous substance, liquid, n.o.s.<br>(Naphthalene) |
| Class                | : | 9  |
| Packing group        | : | III  |
| Labels               | : | CLASS 9  |
| ERG Code             | : | 171  |
| Marine pollutant     | : | no   |
| Reportable Quantity  | : | Naphthalene only regulated in pack sizes > 1,356 kg                  |

**Further information**

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5L or less for liquids or having a net mass

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per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA Special provision A197, and ADR/RID special provision 375.

THE ABOVE INFORMATION ONLY APPLIES TO PACKAGE SIZES WHERE THE HAZARDOUS SUBSTANCE MEETS THE REPORTABLE QUANTITY.

**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**

**SARA 311/312 Hazards** : Respiratory or skin sensitization  
Carcinogenicity  
Aspiration hazard  
Serious eye damage or eye irritation

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

|                        |         |              |
|------------------------|---------|--------------|
| naphthalene            | 91-20-3 | >= 1 - < 5 % |
| 1,2,4-trimethylbenzene | 95-63-6 | >= 1 - < 5 % |

**US State Regulations****Pennsylvania Right To Know**

|  |            |
|--|------------|
| Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified | 64742-94-5 |
| Propylene glycol   | 57-55-6    |
| naphthalene  | 91-20-3    |
| 1,2,4-trimethylbenzene   | 95-63-6    |

**California Prop. 65**

WARNING: This product can expose you to chemicals including naphthalene, sulphuric acid, ethanol, 2,2'-iminodiethanol, Quartz, hexachlorobenzene, which is/are known to the State of California to cause cancer, and

N-methyl-2-pyrrolidone, ethanol, ethanediol, hexachlorobenzene, 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](http://www.P65Warnings.ca.gov).

**The ingredients of this product are reported in the following inventories:**

TSCA : Product contains substance(s) not listed on TSCA inventory.

**TSCA list**

The following substance(s) is/are subject to a Significant New Use Rule:

|   |             |
|---|-------------|
| 4,5,6-Trichloro-2-pyridinecarboxylic acid | 496849-77-5 |
| ADTP - Aminodimethoxytriazolopyrimidine   | 13223-43-3  |
| pentachlorobenzene                        | 608-93-5    |



# SAFETY DATA SHEET



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The following substance(s) is/are subject to TSCA 12(b) export notification requirements:  
Cloquintocet 88349-88-6

### Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-685

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

#### WARNING

Causes substantial but temporary eye injury  
Prolonged or repeated skin contact may cause allergic reactions in some individuals

## SECTION 16. OTHER INFORMATION

### Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

### Full text of other abbreviations

|                    |  |
|--------------------|--|
| ACGIH              | : USA. ACGIH Threshold Limit Values (TLV)  |
| Corteva OEL        | : Corteva Occupational Exposure Limit  |
| Dow IHG            | : Dow Industrial Hygiene Guideline   |
| OSHA P0            | : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)               |
| OSHA Z-1           | : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| US WEEL            | : USA. Workplace Environmental Exposure Levels (WEEL)                              |
| ACGIH / TWA        | : 8-hour, time-weighted average  |
| Corteva OEL / STEL | : Short term exposure limit  |
| Corteva OEL / TWA  | : Time weighted average  |
| Dow IHG / TWA      | : Time Weighted Average (TWA):   |
| Dow IHG / STEL     | : Short term exposure limit  |
| Dow IHG / TWA      | : Time weighted average  |
| OSHA P0 / TWA      | : 8-hour time weighted average   |
| OSHA P0 / STEL     | : Short-term exposure limit  |
| OSHA Z-1 / TWA     | : 8-hour time weighted average   |
| US WEEL / TWA      | : 8-hr TWA   |

AIIC - Australian Inventory of Industrial Chemicals; 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); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification

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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; 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

Revision Date : 06/23/2022

Product code: GF-3196

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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