

Product Name: CLEANWAVE* Herbicide**Issue Date:** 05/09/2011**Print Date:** 09 May 2011

Dow AgroSciences LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. Product and Company Identification**Product Name**

CLEANWAVE* Herbicide

COMPANY IDENTIFICATION

Dow AgroSciences LLC
A Subsidiary of The Dow Chemical Company
9330 Zionsville Road
Indianapolis, IN 46268-1189
USA

Customer Information Number:

800-992-5994

SDSQuestion@dow.com**EMERGENCY TELEPHONE NUMBER****24-Hour Emergency Contact:**

800-992-5994

Local Emergency Contact:

352-323-3500

2. Hazards Identification**Emergency Overview****Color:** Yellow**Physical State:** Liquid.**Odor:** Waxy**Hazards of product:**

WARNING! Combustible liquid and vapor. Causes eye irritation. Aspiration hazard. Can enter lungs and cause damage. Isolate area. Suspect cancer hazard. May cause cancer.

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Health Effects

Eye Contact: May cause severe eye irritation. May cause severe corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin Contact: Brief contact may cause slight skin irritation with local redness.

Skin Absorption: Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Inhalation: No adverse effects are anticipated from single exposure to mist. Based on the available data, narcotic effects were not observed.

Ingestion: Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

Aspiration hazard: Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

Effects of Repeated Exposure: For similar active ingredient(s). Aminopyralid. In animals, effects have been reported on the following organs: Gastrointestinal tract. Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Ingestion of naphthalene by humans has caused hemolytic anemia. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust. For the minor component(s): In animals, effects have been reported on the following organs: Kidney.

Cancer Information: 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.

Birth Defects/Developmental Effects: For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

3. Composition Information

Component	CAS #	Amount
Fluroxypyr 1-methylheptyl ester	81406-37-3	20.22 %
Aminopyralid Triisopropanolamine Salt	566191-89-7	1.92 %
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	41.8 %
Dipropylene glycol monomethyl ether	34590-94-8	18.4 %
Naphthalene	91-20-3	4.2 %
1,2,4-Trimethylbenzene	95-63-6	2.1 %
Balance		>= 9.56 - <= 10.86 %
Hexylene Glycol	107-41-5	>= 0.5 - <= 1.8 %

4. First-aid measures

Description of first aid measures

General advice: 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.

Inhalation: 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.

Skin Contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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 immediately available.

Ingestion: 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

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

Indication of immediate medical attention and special treatment needed

If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. 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.

5. Fire Fighting Measures**Suitable extinguishing media**

Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Special hazards arising from the substance or mixture

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: Nitrogen oxides. Carbon monoxide. Carbon dioxide. Combustion products may include trace amounts of: Hydrogen chloride. Fluorine.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. When product is stored in closed containers, a flammable atmosphere can develop. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special Protective Equipment for Firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling, for additional precautionary measures. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. Handling and Storage

Handling

General Handling: Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Keep container closed. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Keep away from heat, sparks and flame. Keep out of reach of children. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Storage

Store in a dry place. Store in original container. Keep container tightly closed. Do not store near food, foodstuffs, drugs or potable water supplies.

8. Exposure Controls / Personal Protection

Exposure Limits

Component	List	Type	Value
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m ³
Dipropylene glycol monomethyl ether	OSHA Table Z-1	PEL	600 mg/m ³ 100 ppm SKIN
	ACGIH	TWA	100 ppm SKIN
	ACGIH	STEL	150 ppm SKIN
Naphthalene	ACGIH	TWA	10 ppm SKIN
	ACGIH	STEL	15 ppm SKIN
	OSHA Table Z-1	PEL	50 mg/m ³ 10 ppm
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm
Hexylene Glycol	ACGIH	Ceiling	25 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

Personal Protection

Eye/Face Protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin 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.

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Viton. Styrene/butadiene rubber. Examples of acceptable glove barrier materials include: Butyl rubber. Neoprene. Chlorinated polyethylene. Natural rubber ("latex"). Polyvinyl chloride ("PVC" or "vinyl"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

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. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

Ingestion: Avoid ingestion of even very small amounts; do not consume or store food or tobacco in the work area; wash hands and face before smoking or eating.

Engineering Controls

Ventilation: 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.

9. Physical and Chemical Properties

Appearance

Physical State	Liquid.
Color	Yellow
Odor	Waxy
pH	4.5 - 7.5 <i>pH Electrode</i>
Melting Point	Not applicable
Freezing Point	No test data available
Boiling Point (760 mmHg)	No test data available.
Flash Point - Closed Cup	65.6 °C (150.1 °F) <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammable Limits In Air	Lower: No test data available Upper: No test data available
Vapor Pressure	No test data available
Vapor Density (air = 1)	No test data available
Specific Gravity (H₂O = 1)	0.993 <i>Digital Density Meter (Oscillating Coil)</i>
Solubility in water (by weight)	emulsifiable
Autoignition Temperature	No test data available
Decomposition Temperature	No test data available
Kinematic Viscosity	5.77 mm ² /s @ 40 °C
Liquid Density	0.993 g/cm ³ @ 20 °C <i>Digital density meter</i>

10. Stability and Reactivity

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Stable under recommended storage conditions. See Storage, Section 7.

Possibility of hazardous reactions

Polymerization will not occur.

Conditions to Avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

Incompatible Materials: Avoid contact with: Oxidizers.

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: Nitrogen oxides. Toxic gases are released during decomposition. Decomposition products can include trace amounts of: Hydrogen chloride.

11. Toxicological Information

Acute Toxicity**Ingestion**

As product: LD50, Rat 5,000 mg/kg

Based on information for component(s): Naphthalene. Lethal Dose, 5 - 15 ml

Dermal

As product: LD50, Rat > 5,000 mg/kg

Inhalation

As product: LC50, 4 h, Liquid aerosol., Rat > 5.26 mg/l

No deaths occurred at this concentration.

Eye damage/eye irritation

May cause severe eye irritation. May cause severe corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

Sensitization**Skin**

Did not cause allergic skin reactions when tested in guinea pigs.

Respiratory

No relevant data found.

Repeated Dose Toxicity

For similar active ingredient(s). Aminopyralid. In animals, effects have been reported on the following organs: Gastrointestinal tract. Excessive exposure to solvent(s) may cause respiratory irritation and central nervous system depression. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Ingestion of naphthalene by humans has caused hemolytic anemia. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust. For the minor component(s): In animals, effects have been reported on the following organs: Kidney.

Chronic Toxicity and Carcinogenicity

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. For similar active ingredient(s). Fluroxypyr-meptyl. Aminopyralid. Did not cause cancer in laboratory animals.

Carcinogenicity Classifications:

Component	List	Classification
Naphthalene	IARC NTP	Possibly carcinogenic to humans.; 2B Anticipated carcinogen.

Developmental Toxicity

For the active ingredient(s): Fluroxypyr 1-methylheptyl ester. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Based on information for component(s): Did not cause birth defects in laboratory animals.

Reproductive Toxicity

Based on information for component(s): In animal studies, did not interfere with reproduction.

Genetic Toxicology

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative. For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

12. Ecological Information

Toxicity

Data for Component: Fluroxypyr 1-methylheptyl ester

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

Fish Acute & Prolonged Toxicity

LC50, rainbow trout (*Oncorhynchus mykiss*), static renewal, 96 h: > 0.225 mg/l
LC50, sheepshead minnow (*Cyprinodon variegatus*), flow-through, 96 h: > 0.0866 mg/l
The LC50 value is above the water solubility.

Aquatic Invertebrate Acute Toxicity

EC50, water flea *Daphnia magna*, static renewal, 48 h: > 0.183 mg/l
The EC50 value is above the water solubility.

Aquatic Plant Toxicity

ErC50, diatom *Navicula* sp., static, 72 h: 0.24 mg/l

Toxicity to Above Ground Organisms

oral LD50, bobwhite (*Colinus virginianus*): > 2000 mg/kg bodyweight.
dietary LC50, bobwhite (*Colinus virginianus*): > 2000 mg/kg diet.
oral LD50, Honey bee (*Apis mellifera*): > 100 micrograms/bee
contact LD50, Honey bee (*Apis mellifera*): > 100 micrograms/bee

Toxicity to Soil Dwelling Organisms

LC50, Earthworm, *Lumbricus terrestris*: > 1,000 mg/kg

Data for Component: Aminopyralid Triisopropanolamine Salt

Based on information for a similar material: 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). 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).

Data for Component: Solvent naphtha (petroleum), heavy aromatic

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).

Fish Acute & Prolonged Toxicity

LL50, rainbow trout (*Oncorhynchus mykiss*), static, 96 h: 2 - 5 mg/l

Aquatic Invertebrate Acute Toxicity

EL50, water flea *Daphnia magna*, static, 48 h, immobilization: 3 - 10 mg/l

Aquatic Plant Toxicity

EL50, green alga *Pseudokirchneriella subcapitata* (formerly known as *Selenastrum capricornutum*), static, 72 h: 11 mg/l

Toxicity to Above Ground Organisms

Based on information for a similar material: dietary LC50, bobwhite (*Colinus virginianus*): > 6,500 ppm
Based on information for a similar material: oral LD50, bobwhite (*Colinus virginianus*): > 2,250 mg/kg

Data for Component: Dipropylene glycol monomethyl ether

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

LC50, guppy (*Poecilia reticulata*), static, 96 h: > 1,000 mg/l

Aquatic Invertebrate Acute Toxicity

- || LC50, water flea Daphnia magna, static, 48 h, lethality: 1,919 mg/l
- || LC50, common shrimp Crangon crangon, static renewal, 96 h: > 1,000 mg/l

Aquatic Plant Toxicity

- || ErC50, green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum), static, biomass growth inhibition, 96 h: > 969 mg/l

Aquatic Invertebrates Chronic Toxicity Value

- || water flea Daphnia magna, flow-through, 22 d, reproduction, NOEC: > 0.5 mg/l, LOEC: > 0.5 mg/l

Data for Component: **Naphthalene**

- || 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).

Fish Acute & Prolonged Toxicity

- || LC50, rainbow trout (Oncorhynchus mykiss), 96 h: 0.11 mg/l

Aquatic Invertebrate Acute Toxicity

- || EC50, water flea Daphnia magna, static, 48 h, immobilization: 1.6 - 24.1 mg/l

Data for Component: **1,2,4-Trimethylbenzene**

- || 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).

Fish Acute & Prolonged Toxicity

- || LC50, fathead minnow (Pimephales promelas), flow-through, 96 h: 7.7 mg/l

Aquatic Invertebrate Acute Toxicity

- || EC50, water flea Daphnia magna, 48 h: 3.6 mg/l

Data for Component: **Hexylene Glycol**

- || Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity

- || LC50, rainbow trout (Oncorhynchus mykiss), flow-through, 96 h: 9,450 mg/l

Aquatic Invertebrate Acute Toxicity

- || EC50, water flea Daphnia magna, 48 h, immobilization: 3,200 mg/l

Toxicity to Micro-organisms

- || EC50, hUCC; bacteria, 16 h: > 5,000 mg/l

Persistence and DegradabilityData for Component: **Fluroxypyr 1-methylheptyl ester**

- || Material is not readily biodegradable according to OECD/EEC guidelines.

Stability in Water (1/2-life):

- || 12.8 - 16.5 h

Data for Component: **Aminopyralid Triisopropanolamine Salt**

- || For similar material(s): Aminopyralid. Material is not readily biodegradable according to OECD/EEC guidelines.

Data for Component: **Solvent naphtha (petroleum), heavy aromatic**

- || Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
39 %	28 d	OECD 301D Test	fail

Data for Component: **Dipropylene glycol monomethyl ether**

- || Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
75 %	28 d	OECD 301F Test	pass
93 %	13 d	OECD 302B Test	Not applicable

Indirect Photodegradation with OH Radicals			
Rate Constant	Atmospheric Half-life		Method
5.00E-05 cm ³ /s	3.4 - 10.4 h		Estimated.
Biological oxygen demand (BOD):			
BOD 5	BOD 10	BOD 20	BOD 28
0 %	0 %	31.6 %	
Chemical Oxygen Demand: 2.02 mg/mg			
Theoretical Oxygen Demand: 2.06 mg/mg			

Data for Component: **Naphthalene**

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).

Indirect Photodegradation with OH Radicals			
Rate Constant	Atmospheric Half-life		Method
2.16E-11 cm ³ /s	5.9 h		Estimated.
Biological oxygen demand (BOD):			
BOD 5	BOD 10	BOD 20	BOD 28
57.000 %	71.000 %	71.000 %	
Theoretical Oxygen Demand: 3.00 mg/mg			

Data for Component: **1,2,4-Trimethylbenzene**

Material is expected to biodegrade only very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

OECD Biodegradation Tests:			
Biodegradation	Exposure Time	Method	10 Day Window
4 - 18 %	28 d	OECD 301C Test	Not applicable
Indirect Photodegradation with OH Radicals			
Rate Constant	Atmospheric Half-life		Method
1.670E-11 cm ³ /s	0.641 d		Estimated.
Theoretical Oxygen Demand: 3.19 mg/mg			

Data for Component: **Hexylene Glycol**

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

OECD Biodegradation Tests:			
Biodegradation	Exposure Time	Method	10 Day Window
76 %	28 d	OECD 301C Test	Not applicable
Theoretical Oxygen Demand: 2.30 mg/mg			

Bioaccumulative potentialData for Component: **Fluroxypyr 1-methylheptyl ester**

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient, n-octanol/water (log Pow): 4.5 Measured
Bioconcentration Factor (BCF): 26; rainbow trout (Oncorhynchus mykiss); Measured

Data for Component: **Aminopyralid Triisopropanolamine Salt**

Bioaccumulation: For similar active ingredient(s). Aminopyralid. Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Data for Component: **Solvent naphtha (petroleum), heavy aromatic**

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient, n-octanol/water (log Pow): 2.9 - 6.1 Measured

Data for Component: **Dipropylene glycol monomethyl ether**

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

Data for Component: **Naphthalene**

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient, n-octanol/water (log Pow): 3.3 Measured
Bioconcentration Factor (BCF): 40 - 300; fish; Measured

Data for Component: 1,2,4-Trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 3.63 Measured

Bioconcentration Factor (BCF): 33 - 275; common carp (Cyprinus carpio); Measured

Data for Component: Hexylene Glycol

Partition coefficient, n-octanol/water (log Pow):

Mobility in soilData for Component: Fluroxypyr 1-methylheptyl ester

Mobility in soil: Expected to be relatively immobile in soil (Koc > 5000).

Partition coefficient, soil organic carbon/water (Koc): 6,200 **Henry's Law Constant (H):** 5.42E-08 atm*m3/mole; 25 °C Measured

Data for Component: Aminopyralid Triisopropanolamine Salt

Mobility in soil: For similar active ingredient(s), Aminopyralid., Potential for mobility in soil is very high (Koc between 0 and 50).

Data for Component: Solvent naphtha (petroleum), heavy aromatic

Mobility in soil: No data available.

Data for Component: Dipropylene glycol monomethyl ether

Mobility in soil: 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).

Partition coefficient, soil organic carbon/water (Koc): 0.28 Estimated.

Henry's Law Constant (H): 1.6E-07 atm*m3/mole; 25 °C Estimated.

Data for Component: Naphthalene

Mobility in soil: Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient, soil organic carbon/water (Koc): 240 - 1,300 Measured

Henry's Law Constant (H): 2.92E-04 - 5.53E-04 atm*m3/mole; 25 °C Measured

Distribution in Environment: Mackay Level 1 Fugacity Model:

Air	Water.	Biota	Soil	Sediment
74 %	8.5 %	< 0.01 %	18 %	0.39 %

Data for Component: 1,2,4-Trimethylbenzene

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient, soil organic carbon/water (Koc): 720 Estimated.

Henry's Law Constant (H): 6.16E-03 atm*m3/mole; 25 °C Measured

Data for Component: Hexylene Glycol

Partition coefficient, soil organic carbon/water (Koc): 1 Estimated.

Henry's Law Constant (H): 2.02E-09 atm*m3/mole; 25 °C Estimated.

13. Disposal Considerations

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.

14. Transport Information

DOT Non-Bulk
NOT REGULATED

DOT Bulk**Proper Shipping Name:** COMBUSTIBLE LIQUID, NOS**Technical Name:** NAPHTHALENE**Hazard Class:** COMBUSTIBLE LIQUID **ID Number:** NA1993 **Packing Group:** PG III**IMDG****Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.**Technical Name:** Fluroxypyr-meptyl, NAPHTHALENE**Hazard Class:** 9 **ID Number:** UN3082 **Packing Group:** PG III**EMS Number:** f-a,s-f**Marine pollutant.:** Yes**ICAO/IATA****Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.**Technical Name:** Fluroxypyr-meptyl, NAPHTHALENE**Hazard Class:** 9 **ID Number:** UN 3082 **Packing Group:** PG III**Cargo Packing Instruction:** 964**Passenger Packing Instruction:** 964**Additional Information**

Reportable quantity: 1,694 lb – NAPHTHALENE

MARINE POLLUTANT

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. Regulatory Information

OSHA Hazard Communication Standard

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (Acute) Health Hazard	Yes
Delayed (Chronic) Health Hazard	Yes
Fire Hazard	No
Reactive Hazard	No
Sudden Release of Pressure Hazard	No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains the following substances which are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and which are listed in 40 CFR 372.

Component	CAS #	Amount
Naphthalene	91-20-3	4.2%
1,2,4-Trimethylbenzene	95-63-6	2.1%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component	CAS #	Amount
Dipropylene glycol monomethyl ether	34590-94-8	18.4%
Naphthalene	91-20-3	4.2%

1,2,4-Trimethylbenzene	95-63-6	2.1%
Hexylene Glycol	107-41-5	>= 0.5 - <= 1.8 %
Solvent naphtha (petroleum), heavy aromatic	64742-94-5	41.9%

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

This product contains the following substances which are subject to CERCLA Section 103 reporting requirements and which are listed in 40 CFR 302.4.

Component	CAS #	Amount
Naphthalene	91-20-3	4.2%

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Toxic Substances Control Act (TSCA)

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

16. Other Information

Hazard Rating System

NFPA	Health	Fire	Reactivity
	3	2	0

Revision

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

N/A	Not available
W/W	Weight/Weight
OEL	Occupational Exposure Limit
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
DOW IHG	Dow Industrial Hygiene Guideline
WEEL	Workplace Environmental Exposure Level
HAZ_DES	Hazard Designation
Action Level	A value set by OSHA that is lower than the PEL which will trigger the need for activities such as exposure monitoring and medical surveillance if exceeded.

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as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.