



**Product Name:  
Predicade™ Herbicide**

Predicade™ Herbicide is a combination package of products. Attached are the component product SDS which make up Predicade™ Herbicide:

Predicade™ Broadleaf	PCP # 31713 SDS Date: 03/01/2018 Ref: 130000140976
MCPA Ester 600 Liquid (Nufarm)	PCP # 27803 SDS Date: 12/21/2017
Perimeter® II	PCP # 30094 SDS Date: 03/01/2018 Ref: 130000098373
Predicade™ Grass	PCP # 31735 SDS Date: 04/11/2018 Ref: 102000014337

Please review the attached SDS, for a full and complete understanding of the hazards associated with each product before use.

**Manufacturer/Distributor:**

FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
USA

**Telephone Numbers:**

Product Information: 1-833-362-7722  
Medical Emergency: 1-800-331-3148 (USA & Canada)  
Preparation Date: 01/25/2019

Member of CropLife Canada

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**Predicade™ Broadleaf**

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Predicade™ Broadleaf  
 Tradename/Synonym : B12014143

MSDS Number : 130000140976

Product Use : Herbicide  
 Manufacturer : FMC Corporation  
 2929 Walnut Street  
 Philadelphia, PA 19104  
 (215) 299-6000 (General Information)  
 msdsinfo@fmc.com (E-Mail General Information)

Medical Emergency : 1 800 / 331-3148 (ProPharma Group - U.S.A. & Canada)  
 1 651 / 632-6793 (ProPharma Group - All Other Countries - Collect)  
 For leak, fire, spill or accident emergencies, call:  
 1 800 / 424 9300 (CHEMTREC - U.S.A.)  
 1 703 / 741-5970 (CHEMTREC - International)  
 1 703 / 527 3887 (CHEMTREC - Alternate)

**SECTION 2. HAZARDS IDENTIFICATION**

Potential Health Effects

Skin

Thifensulfuron methyl : May cause skin irritation.  
 May cause: Irritation with discomfort or pain, redness or rash, itching or swelling.

Tribenuron methyl : May cause allergic skin reaction.

Eyes

Thifensulfuron methyl : May cause eye irritation.  
 May cause: Tearing, redness, or discomfort.

Tribenuron methyl : May irritate eyes.

Inhalation

Thifensulfuron methyl : May cause: Respiratory irritation, Discomfort, Cough.

Carcinogenicity

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None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, or OSHA, as a carcinogen.

Tribenuron methyl : DuPont has classified this material as a probable human carcinogen.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS-No.	Concentration
Thifensulfuron methyl	79277-27-3	25 %
Tribenuron methyl	101200-48-0	25 %
Other Ingredients		50 %

**SECTION 4. FIRST AID MEASURES**

- Skin contact : Take off all contaminated clothing immediately. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- Eye contact : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.
- Inhalation : Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- Ingestion : No specific intervention is indicated as the compound is not likely to be hazardous. Consult a physician if necessary.
- General advice : Have the product container or label with you when calling a poison control center or doctor, or going for treatment. See Section 1 for emergency phone numbers.

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**SECTION 5. FIREFIGHTING MEASURES**

Flammable Properties

Auto-ignition temperature : 387 °C (729 °F)

Lower explosion limit/ lower flammability limit : 0.1 - 0.23 g/l

Suitable extinguishing media : Water spray, Dry chemical, Foam, Carbon dioxide (CO2)

Unsuitable extinguishing media : High volume water jet, (contamination risk)

Firefighting Instructions : Wear full protective equipment.  
 (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Cool containers/tanks with water spray.  
 Do not allow run-off from fire fighting to enter drains or water courses.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Safeguards (Personnel) : Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus. Use personal protective equipment.

Spill Cleanup : Shovel or sweep up. Avoid dust formation. Dispose of in an approved container.

Accidental Release Measures : Prevent material from entering sewers, waterways, or low areas. Never return spills in original containers for re-use. Dispose of in accordance with local regulations.

**SECTION 7. HANDLING AND STORAGE**

Handling (Personnel) : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Handling (Physical Aspects) : Keep away from heat and sources of ignition. Under severe dusting

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Storage : conditions, this material may form explosive mixtures in air.  
 : Do not contaminate water, other pesticides, fertilizer, food or feed in storage. Store in original container. Store in a cool, dry place. Keep out of the reach of children.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Personal protective equipment

Respiratory protection : Tractor / sprayer without hood: Half mask with a particle filter P1 (EN 143).  
 Backpack / knapsack sprayer: Half mask with a particle filter P1 (EN 143).  
 Mechanical automatized spray application in closed tunnel: No personal respiratory protective equipment normally required.

Skin and body protection

: Applicators and other handlers must wear:  
 Long sleeved shirt and long pants  
 Chemical-resistant gloves, Category A (such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber), all greater than or equal to 14 mils  
 Shoes plus socks  
 PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:  
 Coveralls  
 Chemical resistant gloves made of any waterproof material  
 Shoes plus socks

Protective measures

: Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.  
 All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated.

Exposure Guidelines

Exposure Limit Values

No data available

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Form : solid, granular  
 Color : light brown  
 Odor : slight

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pH	:	8.6 - 9.4
Melting point/range	:	Not available for this mixture.
Boiling point/boiling range	:	Not applicable
Oxidising Substance	:	The product is not oxidizing.
Vapour Pressure	:	Not available for this mixture.
Density	:	at 22 °C (72 °F)
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	Not applicable
Viscosity	:	Not applicable
Vapour density	:	Not available for this mixture.
Phys.-chem./other information	:	No other data to be specially mentioned.

**SECTION 10. STABILITY AND REACTIVITY**

Stability	:	Stable at normal temperatures and storage conditions.
Incompatibility	:	No materials to be especially mentioned.
Hazardous decomposition products	:	Hazardous combustion products: Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> )

**SECTION 11. TOXICOLOGICAL INFORMATION**

Predicade™ Broadleaf		
Inhalation 4 h LC50	:	> 6.0 mg/l , Rat Active ingredient
Dermal LD50	:	> 5,000 mg/kg , Rat
Oral LD50	:	> 5,000 mg/kg , Rat
Skin irritation	:	No skin irritation, Rat
Eye irritation	:	No eye irritation, Rabbit
Sensitisation	:	Causes sensitisation., Guinea pig
Further information	:	Information given is based on data on the components and the toxicology of similar products.
Thifensulfuron methyl		
Repeated dose toxicity	:	

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The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed  
multiple species

Reduced body weight gain

- Carcinogenicity : Animal testing did not show any carcinogenic effects.
- Mutagenicity : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.  
Animal testing did not show any mutagenic effects.
- Reproductive toxicity : No toxicity to reproduction  
Animal testing showed no reproductive toxicity.
- Teratogenicity : Did not show teratogenic effects in animal experiments.  
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Tribenuron methyl

Repeated dose toxicity

The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.

Oral - feed  
Mouse  
90 d  
Reduced body weight gain

Oral  
Rat  
28 d  
Reduced body weight gain

- Carcinogenicity : Not classifiable as a human carcinogen.  
An increased incidence of tumours was observed in laboratory animals.  
Target(s):  
Mammary glands
- Mutagenicity : Animal testing did not show any mutagenic effects.  
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

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Reproductive toxicity : No toxicity to reproduction

**SECTION 12. ECOLOGICAL INFORMATION**

## Aquatic Toxicity

## Thifensulfuron methyl

96 h LC50 : Oncorhynchus mykiss (rainbow trout) &gt; 100 mg/l

14 d EC50 : Lemna minor (duckweed) 0.0013 mg/l

48 h EC50 : Daphnia magna (Water flea) 470 mg/l

28 d : NOEC Americamysis bahia (mysid shrimp) 7.93 mg/l

## Tribenuron methyl

96 h LC50 : Oncorhynchus mykiss (rainbow trout) 738 mg/l

120 h EC50 : Pseudokirchneriella subcapitata (microalgae) 0.0208 mg/l

14 d EC50 : Lemna gibba (duckweed) 0.00424 mg/l

48 h EC50 : Daphnia magna (Water flea) &gt; 894 mg/l

Additional ecological information : Environmental Hazards: Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters or rinsate.

**SECTION 13. DISPOSAL CONSIDERATIONS**

Waste Disposal : Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

 Container disposal: : Container Refilling and Disposal:  
 Refer to the product label for instructions.  
 The container must only be refilled with this pesticide product.  
**DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.**  
 Do not transport if this container is damaged or leaking.



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**SECTION 14. TRANSPORT INFORMATION**

IATA_C	UN number	: 3077
	Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Tribenuron methyl, Thifensulfuron-methyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9MI
IMDG	UN number	: 3077
	Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Tribenuron methyl, Thifensulfuron-methyl)
	Class	: 9
	Packing group	: III
	Labelling No.	: 9
	Marine pollutant	: yes (Tribenuron methyl, Thifensulfuron-methyl)

Not regulated as a hazardous material by TDG.

**SECTION 15. REGULATORY INFORMATION**

PCP Registration #	: 31713
Remarks	: Regulated under the Pest Control Products Act - WHMIS exempt.

**SECTION 16. OTHER INFORMATION**

MSDS preparation date : 03/01/2018

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Contact person : FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
(215) 299-6000 (General Information)  
msdsinfo@fmc.com (E-Mail General Information)

Disclaimer

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Significant change from previous version is denoted with a double bar.



## Nufarm MCPA Ester 600 Liquid Herbicide Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

### 1. Identification

**Product Name:** Nufarm MCPA Ester 600 Liquid Herbicide

**PCP Registration No.:** 27803

Refer to the approved product label for handling and use instructions.

**Product Type:** Herbicide

**Supplier:** Nufarm Agriculture Inc.  
Suite 350, 2618 Hopewell Place NE  
Calgary, Alberta, T1Y 7J7, Canada  
1-800-868-5444

**Telephone Numbers:** 24 Hour Emergency Response Number, Chemtrec, 1-800-424-9300.  
For medical emergencies, ProPharma Group, 1-877-325-1840.  
For product and use information, Nufarm Agriculture Inc.,  
1-800-868-5444.

### 2. Hazard Identification

Classified according to UN GHS Version 5.

**Physical Hazards:**

None

**Health Hazards:**

Acute toxicity (Oral) Category 4

Acute toxicity (Inhalation) Category 4

Acute toxicity (Dermal) Category 5

**Environmental Hazards:**

Hazardous to aquatic environment, acute Category 1

**Signal Word:**

WARNING

**Hazard Statements:**

Harmful if swallowed. Harmful if inhaled. May be harmful in contact with skin. Very toxic to aquatic life.



# Nufarm MCPA Ester 600 Liquid Herbicide

## Safety Data Sheet

Issue Date: 2017-12-21

Supersedes Date: 2017-05-17

{Reserved}

### Precautionary Statements:

May be harmful in contact with skin. Avoid contact with skin, eyes and clothing. After use, wash hands and other exposed skin. Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. Remove and wash contaminated clothing before reuse.

Harmful if swallowed. Do not eat, drink or smoke when using this product.

Avoid breathing spray mist. Use only outdoors or in a well-ventilated area.

This product contains an active ingredient and petroleum distillates which are toxic to aquatic organisms.

### 3. Composition / Information on Ingredients

Hazardous Components	CAS No.	Wt. %
MCPA 2-ethylhexyl ester	29450-45-1	89-94
Chemical Synonyms: MCPA 2EH; 2-ethylhexyl 2-(4-chloro-2-methylphenoxy)acetate; 2-ethylhexyl (4-chloro-2-methylphenoxy)acetate		
Distillate petroleum, hydro treated light	64742-47-8	1-3

Other ingredients are considered non-hazardous.

### Content as Expressed on Product Label

MCPA, present as 2-ethylhexyl ester ... 600 g a.e./L

### 4. First Aid Measures

**If swallowed**, call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

**If on skin or clothing**, take off contaminated clothing. Rinse skin immediately with plenty of water for 15–20 minutes. Call a poison control centre or doctor for treatment advice.

**If in eyes**, hold eye 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 eye. Call a poison control centre or doctor for treatment advice.

**If inhaled**, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you, when seeking medical attention.

DO NOT induce vomiting. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. No specific antidote. Employ supportive care. High concentrations of MCPA may cause severe irritation to the eyes. Symptoms of overexposure to MCPA could

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include slurred speech, twitching, jerking and spasms, drooling, low-blood pressure and unconsciousness. Treat symptomatically.

## 5. Fire-fighting Measures

**Extinguishing Media:** Water fog, alcohol foam, carbon dioxide, dry chemical.

**Special Firefighting Procedures:** Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff.

**Flash Point:**..... >100 C

**Conditions of Flammability:** ..... Not classed as a combustible liquid, but may burn under fire conditions.

**Hazardous Decomposition Products:**... Under fire conditions, may produce gases such as hydrogen chloride, nitrogen oxides and carbon oxides.

**National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product: Health: 2      Flammability: 1      Reactivity: 0**

Hazards Scale: 0 = Minimal 1 = Slight      2 = Moderate 3 = Serious 4 = Severe

## 6. Accidental Release Measures

Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, sawdust, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal. Large spills to soil or similar surfaces may necessitate removal of top soil.

## 7. Handling and Storage

**Handling:** Avoid contact with skin, eyes and clothing. After use, wash hands and other exposed skin. Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. Remove and wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product.

**Storage:** Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. May be stored at any temperature. Shake well before using.

## 8. Exposure Controls / Personal Protection

**Engineering Controls:** Use only outdoors or in a well-ventilated area.

**Personal Protective Equipment:** Long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal.

**Exposure Guidelines:**

Component	TWA*	STEL**	Reference/Note
MCPA 2-ethylhexyl ester	N/E	N/E	None found

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Distillate petroleum, hydro treated light	1200 mg/m <sup>3</sup>	N/E	Manufacturers recommendation, total hydrocarbon
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\*Time-weighted Average, 8-hour unless otherwise noted.

\*\*Short Term Exposure Limit

NE = Not Established

Refer to approved product label for additional exposure control guidance.

## 9. Physical and Chemical Properties

**NOTE:** Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

**Appearance (physical state, colour, etc.)** ..... clear amber liquid  
**Odour** ..... hydrocarbon-like, phenolic  
**Odour threshold** ..... not available  
**pH** ..... 4.3 (1% w/w dilution)  
**Melting point / Freezing point** ..... <-25C (MCPA 2EH)  
**Initial boiling point and boiling range** ..... >220C (MCPA 2EH)  
**Flash point** ..... >100C  
**Evaporation rate** ..... not available  
**Flammability (solids, gases)** ..... not applicable  
**Upper / Lower flammability or explosive limits** ... not available  
**Vapour pressure** ..... 5.7 x 10<sup>-3</sup> mm Hg @ 25C (MCPA 2EH)  
**Vapour density** ..... not available  
**Relative density** ..... 1.064  
**Solubility(ies)** ..... product is emulsifiable in water  
**Partition coefficient: n-octanol/water** ..... product is oil soluble  
**Autoignition temperature** ..... not available  
**Decomposition temperature** ..... >220C (MCPA 2EH)  
**Viscosity** ..... 58.4 cP @ 20C

## 10. Stability and Reactivity

**Reactivity:** Not reactive.

**Chemical Stability:** Stable under normal handling and storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization will not occur.

**Conditions to Avoid:** Excessive heat. Do not store near heat or flame.

**Incompatible Materials:** Avoid contact with strong acidic, basic or oxidizing agents.

**Hazardous Decomposition Products:** Under fire conditions, may produce gases such as hydrogen chloride, nitrogen oxides and carbon oxides.

## 11. Toxicological Information

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**Likely routes of exposure:** Inhalation, ingestion, skin and eye contact.

**Eye contact:** May cause eye irritation, generally of minimal degree. Causes redness and tearing.

**Skin contact:** May be harmful if absorbed through skin. May cause skin irritation, generally of minimal degree.

**Ingestion:** Harmful if swallowed. May cause dizziness, temporary loss of muscle coordination, nausea, vomiting, abdominal pain, decreased blood pressure, fatigue, muscle weakness, muscle spasms.

**Inhalation:** Harmful if inhaled. Vapours could cause coughing, burning, headache, dizziness, respiratory irritation and symptoms similar to those from ingestion.

**Medical Conditions Aggravated by Exposure:** Skin exposure may aggravate preexisting skin conditions. Inhalation of mist may aggravate preexisting respiratory conditions.

## Toxicological Data:

**Acute oral LD<sub>50</sub> (mg/kg)** ..... 1046 (Rat, combined male & female)

**Acute dermal LD<sub>50</sub> (mg/kg)** ..... >2000 (Rat, male & female)

**Acute inhalation LC<sub>50</sub> (mg/l)** ..... >2.64 (Rat, male & female, 4-hour, nose-only exposure)

**Skin corrosion/irritation** ..... Slightly irritating to skin (Rabbit)

**Serious eye damage/irritation** ..... Mildly irritating to the eye (Rabbit)

**Respiratory or skin sensitization** ... Not considered as a contact dermal sensitizer (Guinea pig)

**Germ cell mutagenicity** ..... There have been some positive and some negative studies, but the weight of evidence is that MCPA is not mutagenic. Products similar to the hydrocarbon component are not considered to be mutagenic.

**Carcinogenicity** ..... The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as possibly carcinogenic to humans (Group 2B), the category for limited evidence for carcinogenicity in humans. MCPA was not carcinogenic to rats or mice in lifetime feeding studies. Products similar to the hydrocarbon component are not considered to be mutagenic and are unlikely to cause tumors.

**Reproductive toxicity** ..... Animal reproduction studies with MCPA indicate there is no increased sensitivity of the young relative to maternal animals.

## 12. Ecological Information

### Ecotoxicity:

Data are from laboratory studies conducted on MCPA-2-ethylhexyl technical.

**Aquatic Invertebrate:** 48-Hour EC<sub>50</sub> (mg/L) ..... 0.28 (*Daphnia*)

**Fish:** 96-Hour LC<sub>50</sub> (mg/L) ..... 3.2 (Rainbow Trout), > 3.2 (Bluegill Sunfish)

**Algae:** 120-Hour EC<sub>50</sub> (mg ae/L) 0.25 (*Selenastrum*), 1.2 (*Navicula*), 0.085 (*Skeletonema*)

**Birds:** Oral LD<sub>50</sub> (mg ae/kg) ..... >2250 (Bobwhite); Dietary LDD<sub>50</sub> > 3800 (Bobwhite), > 930 (Mallard) (mg ae/kg bw/d)

**Bees:** Oral LD<sub>50</sub> ..... > 250 µg 500 g/L MCPA 2EH formulation/bee

**Bees:** Contact LD<sub>50</sub> ..... > 210 µg 500 g/L MCPA 2EH formulation/bee

**Persistence and Degradability:** MCPA 2EH rapidly hydrolyzes to parent MCPA acid. MCPA is microbially degraded with typical half-life (ester and acid) of 5 to 20 days. Persistent in anaerobic environments.

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**Mobility in Soil:** Moderate to high mobility potential, but rapidly degraded.

**Bioaccumulation Potential:** Negligible.

## 13. Disposal Considerations

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations.

Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsings to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

## 14. Transport Information

### Canadian TDG Description (Road & Rail):

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (MCPA Ester), Class 9, PG III, Marine pollutant.

Section 1.45.1 of the TDG Regulations provides an exemption from documentation and safety marks only for this product and only when transported by a road or railway vehicle.

### United States

#### DOT:

< 119 gallons per complete package

Non Regulated

≥ 119 gallons per complete package

UN 3082, Environmentally hazardous substance, liquid, n.o.s. (MCPA Ester), 9, III, Marine Pollutant

## 15. Regulatory Information

*Pest Control Products Act* Registration Number: ..... 27803

OPAC Schedule: .... 3

Read the approved label, authorized under the *Pest Control Products Act*, prior to using or handling the pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the *Pest Control Products Act*. These requirements differ from the classification criteria and hazard information



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{Reserved}

required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control product label:



WARNING

POISON

WHMIS exempt.

**16. Other Information**

This Safety Data Sheet (SDS) is designed to comply with the Globally Harmonized System (GHS) of classification, and the *Hazardous Products Regulations*.

This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use. The product labeling provides that information specifically for product use as intended.

Company and published information is used in the development of this SDS. The information herein is presented in good faith and believed accurate at the date of publication. However, no warranty, expressed or implied, is given.

Revisions to the last issue: Addition of PMRA guidance info to Section 15.

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Supersedes Date: 2017-05-17



# Material Safety Data Sheet

Issue Date: 03/01/2018

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## 1. PRODUCT AND COMPANY IDENTIFICATION

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Product name: **Perimeter II Herbicide**

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

**Identified uses:** End use herbicide product

**COMPANY IDENTIFICATION**

FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
(215) 299-6000 (General Information)  
msdsinfo@fmc.com (General Information)

**Medical Emergency:**

1 800 / 331-3148 (ProPharma Group - U.S.A. & Canada)  
1 651 / 632-6793 (ProPharma Group - All Other Countries - Collect)

**For leak, fire, spill or accident emergencies, call:**

1 800 / 424 9300 (CHEMTREC - U.S.A.)  
1 703 / 741-5970 (CHEMTREC - International)  
1 703 / 527 3887 (CHEMTREC - Alternate)

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## 2. HAZARDS IDENTIFICATION

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**Emergency Overview**

**Appearance**

Physical state            Liquid

Color                      Yellow

**Odor**                      Spicy

**Hazard Summary**

**WARNING!!**

May cause allergic skin reaction.  
May cause eye irritation.  
Isolate area.  
Toxic fumes may be released in fire situations.

### Potential Health Effects

**Eyes:** May cause moderate eye irritation.  
May cause slight corneal injury.

**Skin:** Has demonstrated the potential for contact allergy in mice.  
Prolonged skin contact is unlikely to result in absorption of harmful amounts.  
Brief contact may cause slight skin irritation with local redness.  
May cause drying and flaking of the skin.

**Inhalation:** No adverse effects are anticipated from single exposure to mist.  
Based on the available data, respiratory irritation was not observed.

**Ingestion:** Very low toxicity if swallowed.  
Harmful effects not anticipated from swallowing small amounts.

**Chronic Exposure:** For the active ingredient(s):  
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.  
Based on information for component(s):  
In animals, effects have been reported on the following organs:  
Kidney.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

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This product is a mixture.

Component	CASRN	Weight percent
Fluroxypyr 1-methylheptyl ester	81406-37-3	45.52%
Heavy aromatic naphtha	64742-94-5	>= 0.7 - <= 2.6 %
N-Methyl-2-pyrrolidone	872-50-4	0.1%
Balance	Not available	>= 51.8 - <= 53.7 %

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## 4. FIRST AID MEASURES

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### 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. 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.

**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.

**Ingestion:** No emergency medical treatment necessary.

**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), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**Indication of any immediate medical attention and special treatment needed**

**Notes to 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. Skin contact may aggravate preexisting dermatitis.

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## 5. FIREFIGHTING MEASURES

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**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** Do not use direct water stream. May spread fire.

**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. Hydrogen fluoride. Hydrogen chloride. Carbon monoxide. Carbon dioxide.

**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. 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. Burning liquids may be extinguished by dilution with water. 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. 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.

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## 6. ACCIDENTAL RELEASE MEASURES

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**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. 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. Dirt. 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.

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## 7. HANDLING AND STORAGE

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**Precautions for safe handling:** Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**Conditions for safe storage:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Fluroxypyr 1-methylheptyl ester	Dow IHG	TWA	10 mg/m <sup>3</sup>
N-Methyl-2-pyrrolidone	US WEEL	TWA	10 ppm
	US WEEL	TWA	Absorbed via skin
	CA ON OEL	TWA	400 mg/m <sup>3</sup>
	US WEEL	TWA	Absorbed via skin

Consult local authorities for recommended exposure limits.

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.

**Exposure controls**

**Engineering controls:** 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.

**Individual protection measures**

**Eye/face protection:** Use chemical goggles.

**Skin protection**

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

**Other 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.

**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.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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**Appearance**

<b>Physical state</b>	Liquid
<b>Color</b>	Yellow
<b>Odor</b>	Spicy
<b>Odor Threshold</b>	No test data available
<b>pH</b>	4.58 1% ASTM E70
<b>Melting point/range</b>	Not applicable
<b>Freezing point</b>	No test data available
<b>Boiling point (760 mmHg)</b>	No test data available
<b>Flash point</b>	<b>closed cup</b> > 100 °C ASTM D3278
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No test data available
<b>Flammability (solid, gas)</b>	Not applicable to liquids
<b>Lower explosion limit</b>	No test data available
<b>Upper explosion limit</b>	No test data available
<b>Vapor Pressure</b>	No test data available
<b>Relative Vapor Density (air = 1)</b>	No test data available
<b>Relative Density (water = 1)</b>	1.05

<b>Water solubility</b>	emulsifiable
<b>Partition coefficient: n-octanol/water</b>	no data available
<b>Auto-ignition temperature</b>	358 °C <i>EC Method A15</i>
<b>Decomposition temperature</b>	No test data available
<b>Dynamic Viscosity</b>	28.2 mPa.s at 40 °C <i>OECD 114</i>
<b>Kinematic Viscosity</b>	No test data available
<b>Explosive properties</b>	No <i>EEC A14</i>
<b>Oxidizing properties</b>	no data available
<b>Liquid Density</b>	1.05 g/cm <sup>3</sup> at 20 °C <i>OECD 109</i>
<b>Molecular weight</b>	No test data available
<b>Surface tension</b>	32 mN/m at 25 °C <i>EC Method A5</i>

NOTE: The physical data presented above are typical values and should not be construed as a specification.

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## 10. STABILITY AND REACTIVITY

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**Reactivity:** No dangerous reaction known under conditions of normal use.

**Chemical stability:** Unstable at elevated temperatures.

**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.

**Incompatible materials:** None known.

**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: Hydrogen chloride. Hydrogen fluoride. Nitrogen oxides. Toxic gases are released during decomposition.

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## 11. TOXICOLOGICAL INFORMATION

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*Toxicological information on this product or its components appear in this section when such data is available.*

### Acute toxicity

#### Acute oral toxicity

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:

LD50, Rat, female, > 5,000 mg/kg No deaths occurred at this concentration.

#### Acute dermal toxicity

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

As product:

LD50, Rat, male and female, > 5,000 mg/kg No deaths occurred at this concentration.

**Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to mist. Based on the available data, respiratory irritation was not observed.

LC50, Rat, male and female, 4 Hour, dust/mist, > 5.50 mg/l

**Skin corrosion/irritation**

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Prolonged contact is essentially nonirritating to skin.

**Serious eye damage/eye irritation**

May cause moderate eye irritation.

May cause slight corneal injury.

**Sensitization**

As product:

Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

**Specific Target Organ Systemic Toxicity (Single Exposure)**

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

**Specific Target Organ Systemic Toxicity (Repeated Exposure)**

For the active ingredient(s):

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

For the major component(s):

For similar material(s):

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

Kidney.

For the minor component(s):

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.

**Carcinogenicity**

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

**Teratogenicity**

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. For the minor component(s): N-methyl pyrrolidone has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

**Reproductive toxicity**

For the active ingredient(s): In animal studies, did not interfere with reproduction.



**Mutagenicity**

As product: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

**Aspiration Hazard**

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

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**12. ECOLOGICAL INFORMATION**

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*Ecotoxicological information on this product or its components appear in this section when such data is available.*

**Toxicity****Acute toxicity to fish**

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, *Oncorhynchus mykiss* (rainbow trout), flow-through test, 96 Hour, 14.3 mg/l, OECD Test Guideline 203

**Acute toxicity to aquatic invertebrates**

EC50, *Daphnia magna* (Water flea), static test, 48 Hour, 20 mg/l, OECD Test Guideline 202

**Acute toxicity to algae/aquatic plants**

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, 72 Hour, Growth rate inhibition, 9.6 mg/l, OECD Test Guideline 201

**Toxicity to Above Ground Organisms**

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, *Colinus virginianus* (Bobwhite quail), > 2,250 mg/kg

**Toxicity to soil-dwelling organisms**

LC50, *Eisenia fetida* (earthworms), 14 d, survival, > 1,000 mg/kg

**Persistence and degradability****Fluroxypyr 1-methylheptyl ester**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

**Biodegradation:** 32 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.2 mg/mg

**Stability in Water (1/2-life)**

, half-life, 454 d

**Heavy aromatic naphtha**

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

**N-Methyl-2-pyrrolidone**

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

10-day Window: Pass

**Biodegradation:** 91 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B or Equivalent

**Theoretical Oxygen Demand:** 2.58 mg/mg

**Photodegradation**

**Test Type:** Half-life (indirect photolysis)

**Sensitizer:** OH radicals

**Atmospheric half-life:** 0.486 d

**Method:** Estimated.

**Balance**

**Biodegradability:** No relevant data found.

**Bioaccumulative potential**

**Fluroxypyr 1-methylheptyl ester**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 5.04 Measured

**Bioconcentration factor (BCF):** 26 Oncorhynchus mykiss (rainbow trout) Measured

**Heavy aromatic naphtha**

**Bioaccumulation:** For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

**N-Methyl-2-pyrrolidone**

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** -0.38 Measured

**Balance**

**Bioaccumulation:** No relevant data found.

**Mobility in soil**

**Fluroxypyr 1-methylheptyl ester**

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

**Partition coefficient(Koc):** 6200 - 43000

**Heavy aromatic naphtha**

No relevant data found.

**N-Methyl-2-pyrrolidone**

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(Koc):** 21 Estimated.

**Balance**

No relevant data found.

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## 13. DISPOSAL CONSIDERATIONS

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**Disposal methods:** 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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## 14. TRANSPORT INFORMATION

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TD ;

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Fluroxypyr

**Classification for SEA transport (IMO-IMDG):**

<b>Proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III
<b>Marine pollutant</b>	Fluroxypyr
<b>Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>Proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.(Fluroxypyr)
<b>UN number</b>	UN 3082
<b>Class</b>	9
<b>Packing group</b>	III

**Further information:**

### NOT REGULATED PER TDG EXEMPTION 1.45.1 FOR ROAD OR RAIL

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. 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.

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## 15. REGULATORY INFORMATION

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**Hazardous Products Act Information: CPR Compliance**

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**Hazardous Products Act Information: WHMIS Classification**

This product is exempt under WHMIS.

**National Fire Code of Canada**

Not applicable

**Canadian Domestic Substances List (DSL) (DSL)**

This product contains chemical substance(s) exempt from CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) requirements.

**Pest Control Products Act Registration Number: 30094**

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## 16. OTHER INFORMATION

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**Hazard Rating System****NFPA**

Health	Fire	Reactivity
1	1	1

**Revision**

Identification Number: 101188173 / A215 / Issue Date: 03/01/2018 / Version: 5.3

DAS Code: GF-1784

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

**Legend**

Absorbed via skin	Absorbed via skin
CA ON OEL	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

**Information Source and References**

The information in this Safety Data Sheet is based entirely on information from FMC Corporation.

This SDS is prepared by the Global Regulatory Chemical Compliance team in the Global Regulatory Affairs Group from information supplied by internal references within our company.

**Disclaimer**

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## Safety Data Sheet

### Predicade™ Grass Herbicide

SDS Number: 102000014337

SDS Version 2.1D

Revision Date: 04/11/2018

Print Date: 04/11/2018

## SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product name** Predicade™ Grass Herbicide  
**SDS Number** 102000014337  
**Product code (UVP)** 79303688  
**PCP Registration No.** 31735  
**Product Use** Herbicide

**Manufacturer:**  
FMC Corporation  
2929 Walnut Street  
Philadelphia, PA 19104  
(215) 299-6000 (General Information)  
msdsinfo@fmc.com (General Information)

### Medical Emergency:

1 800 / 331-3148 (ProPharma Group - U.S.A. & Canada)

1 651 / 632-6793 (ProPharma Group - All Other Countries - Collect)

### For leak, fire, spill or accident emergencies, call:

1 800 / 424 9300 (CHEMTREC - U.S.A.)

1 703 / 741-5970 (CHEMTREC - International)

1 703 / 527 3887 (CHEMTREC - Alternate)

## SECTION 2. HAZARDS IDENTIFICATION

*NOTE: Please refer to Section 11 for detailed toxicological information.*

**Emergency Overview** Warning! Keep out of the reach of children. Irritating to eyes and skin.

**Physical State** Liquid

**Odor** aromatic

**Appearance** brown

**Exposure routes** Eye contact, Skin contact, Inhalation, Ingestion

### **Immediate Effects**

**Eye** Moderate eye irritation. Do not get in eyes.

**Skin** Moderate skin irritation. Avoid contact with skin and clothing.

**Ingestion** Do not take internally.

**Inhalation** Do not breathe vapours or spray mist.

### **Chronic or Delayed Long-Term**

This product or its components may have target organ effects.

### **Potential Environmental Effect**

Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.



**Safety Data Sheet**  
**Predicade™ Grass Herbicide**

SDS Number: 102000014337  
SDS Version 2.1D

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Thiencarbazone-methyl	317815-83-1	1.00
Mefenpyr-diethyl	135590-91-9	6.00
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	56.70

**SECTION 4. FIRST AID MEASURES**

<b>General</b>	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
<b>Eye</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
<b>Skin</b>	Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.
<b>Ingestion</b>	Rinse out mouth and give water in small sips to drink. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. DO NOT induce vomiting unless directed to do so by a physician or poison control center.
<b>Inhalation</b>	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
<b>Notes to physician</b>	
<b>Signs and Symptoms</b>	No symptoms known or expected.
<b>Treatment</b>	There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

**SECTION 5. FIRE FIGHTING MEASURES**

<b>Flash point</b>	> 100 °C / 212 °F
<b>Autoignition temperature</b>	no data available
<b>Lower Flammability Limit</b>	no data available
<b>Upper Flammability Limit</b>	no data available



**Safety Data Sheet**  
**Predicade™ Grass Herbicide**

SDS Number: 102000014337  
SDS Version 2.1.D

<b>Explosiveness</b>	no data available
<b>Fire and Explosion Hazards</b>	In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid) Carbon monoxide (CO) Nitrogen oxides (NOx) Sulphur oxides
<b>Suitable extinguishing media</b>	Water spray, Carbon dioxide (CO2), Foam, Sand
<b>Fire Fighting Instructions</b>	Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.  In the event of fire and/or explosion do not breathe fumes. Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
<b>Dust explosion class</b>	Not applicable.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions</b>	Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment. Remove all sources of ignition.
<b>Methods for cleaning up</b>	Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.
<b>Additional advice</b>	Do not allow to enter soil, waterways or waste water canal.

**SECTION 7. HANDLING AND STORAGE**

<b>Handling procedures</b>	Use only in area provided with appropriate exhaust ventilation.  Keep away from heat and sources of ignition.
<b>Storing Procedures</b>	Store in a place accessible by authorized persons only. Keep containers tightly closed in a dry, cool and well-ventilated place.  Protect from freezing.  Keep away from food, drink and animal feedingstuffs.
<b>Work/Hygienic Procedures</b>	Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.



# Safety Data Sheet

## Predicade™ Grass Herbicide

SDS Number: 102000014337  
SDS Version 2.1D

Remove soiled clothing immediately and clean thoroughly before using again.  
Wash thoroughly and put on clean clothing.

### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General Protection</b>	Follow all label instructions. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.
<b>Eye/Face Protection</b>	Chemical resistant goggles must be worn.
<b>Hand protection</b>	Chemical resistant nitrile rubber gloves
<b>Body Protection</b>	Wear long-sleeved shirt and long pants and shoes plus socks.
<b>Respiratory protection</b>	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

#### Exposure Limits

Thiencarbazone-methyl	317815-83-1	10 mg/m <sup>3</sup>
Mefenpyr-diethyl	135590-91-9	10 mg/m <sup>3</sup>

\*

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance</b>	brown
<b>Physical State</b>	Liquid
<b>Odor</b>	aromatic
<b>pH</b>	6.5 - 8.0 (1 %) at 23 °C
<b>Vapor Pressure</b>	no data available <b>Vapor</b>
<b>Density (Air = 1)</b>	no data available
<b>Density</b>	ca. 1.00 g/cm <sup>3</sup> at 20 °C
<b>Evaporation rate</b>	no data available
<b>Boiling Point</b>	no data available





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<b>Minimum Ignition Energy</b>	no data available
<b>Decomposition temperature</b>	Stable under normal conditions.
<b>Partition coefficient: n-octanol/water</b>	no data available
<b>Viscosity</b>	40 - 150 mPa.s at 20 °C Velocity gradient 20 /s
<b>Other information</b>	Further safety related physical-chemical data are not known.

## SECTION 10. STABILITY AND REACTIVITY

<b>Conditions to avoid</b>	Extremes of temperature and direct sunlight.
<b>Incompatibility</b>	Store only in the original container.
<b>Hazardous Decomposition Products</b>	No decomposition products expected under normal conditions of use.
<b>Hazardous reactions</b>	No hazardous reactions when stored and handled according to prescribed instructions.

## SECTION 11. TOXICOLOGICAL INFORMATION

Only acute toxicity studies have been performed on the formulated product. The non-acute information pertains to the technical-grade active ingredient, Thiencazabone-methyl, as well as, the herbicide safener, Mefenpyr-diethyl.

<b>Acute oral toxicity</b>	female rat: LD50: > 2,000 mg/kg
<b>Acute dermal toxicity</b>	rat: LD50: > 2,000 mg/kg
<b>Acute inhalation toxicity</b>	rat: LC50: > 1.73 mg/l Exposure time: 4 h Determined in the form of liquid aerosol. Highest attainable concentration. No deaths  rat: LC50: > 6.92 mg/l Exposure time: 1 h Determined in the form of liquid aerosol. Extrapolated from the 4 hr LC50.
<b>Skin irritation</b>	rabbit: Moderate skin irritation.



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<b>Eye irritation</b>	rabbit: Moderate eye irritation.
<b>Sensitisation</b>	mouse: Non-sensitizing. OECD Test Guideline 429, local lymph node assay (LLNA)
<b>Chronic toxicity</b>	Thiencarbazone-methyl did not cause specific target organ toxicity in experimental animal studies.  Mefenpyr-diethyl did not cause specific target organ toxicity in experimental animal studies.

#### Assessment Carcinogenicity

Thiencarbazone-methyl was not carcinogenic in a lifetime feeding study in rats. Thiencarbazone-methyl caused at high dose levels an increased incidence of tumours in mice in the following organ(s): urinary bladder. The tumours seen with Thiencarbazone-methyl were caused through the chronic irritation due to the presence of bladder stones.

Mefenpyr-diethyl was not carcinogenic in lifetime feeding studies in rats and mice.

#### ACGIH

None.

#### NTP

None.

#### IARC

None.

#### OSHA

None.

<b>Reproductive toxicity</b>	Thiencarbazone-methyl did not cause reproductive toxicity in a two-generation study in rats.  Mefenpyr-diethyl did not cause reproductive toxicity in a two-generation study in rats.
<b>Developmental Toxicity</b>	Thiencarbazone-methyl did not cause developmental toxicity in rats and rabbits.  Mefenpyr-diethyl caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Mefenpyr-diethyl are related to maternal toxicity.
<b>Mutagenicity</b>	Thiencarbazone-methyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.  Mefenpyr-diethyl was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

## SECTION 12. ECOLOGICAL INFORMATION

<b>Toxicity to fish</b>	Rainbow trout ( <i>Oncorhynchus mykiss</i> )
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	LC50: > 104 mg/l Exposure time: 96 h
<b>Toxicity to aquatic plants</b>	Pseudokirchneriella subcapitata Growth rate EC50: 1.017 mg/l Exposure time: 72 h  Lemna gibba (duckweed) Growth rate EC50: 0.00131 mg/l Exposure time: 7 d
<b>Acute Toxicity to Aquatic Invertebrates</b>	Water flea (Daphnia magna) EC50: > 98.6 mg/l Exposure time: 48 h
<b>Stability in soil</b>	Not applicable for this mixture.
<b>Bioaccumulation</b>	Not applicable for this mixture.
<b>Environmental precautions</b>	Do not allow to get into surface water, drains and ground water.
<b>Ecological Information</b>	The ecological data given are those of the active ingredient.

## SECTION 13. DISPOSAL CONSIDERATIONS

<b>General Disposal Guidance</b>	In accordance with current regulations and, if necessary, after consultation with the site operator and/or with the responsible authority, the product may be taken to a waste disposal site or incineration plant.
<b>Container Disposal</b>	Triple rinse containers. Do not re-use empty containers. Puncture container to avoid re-use. Follow advice on product label and/or leaflet.

## SECTION 14. TRANSPORT INFORMATION

<b>TDG</b>	
UN number	<b>3082</b>
Labels	9
Packaging group	III
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (THIENCARBAZONE-METHYL SOLUTION)
<b>49CFR</b>	Not dangerous goods / not hazardous material



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**IMDG**

UN number **3082**  
Class 9  
Packaging group III  
Marine pollutant YES  
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(THIENCARBAZONE-METHYL SOLUTION)

**IATA**

UN number **3082**  
Class 9  
Packaging group III  
Environm. Hazardous Mark YES  
Description of the goods ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(THIENCARBAZONE-METHYL SOLUTION )

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Further Information Exempt from regulation when transported by road or rail, in accordance with TDG Regulations 1.45.1.  
This exemption provides that this product does not require dangerous goods shipping documentation or safety marks when transported on land by road or rail.

**SECTION 15. REGULATORY INFORMATION**

**PCP Registration No.** 31735

**US Federal Regulations**

**TSCA list**

Solvent Naphtha (petroleum), heavy aromatic 64742-94-5

**US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)**

None.

**SARA Title III - Section 302 - Notification and Information**

None.

**SARA Title III - Section 313 - Toxic Chemical Release Reporting**

None.

**US States Regulatory Reporting**

**CA Prop65**

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

**US State Right-To-Know Ingredients**

None.

**Canadian Regulations**

**Canadian Domestic Substance List**

Solvent Naphtha (petroleum), heavy aromatic 64742-94-5



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#### Environmental

##### CERCLA

None.

##### Clean Water Section 307 Priority Pollutants

None.

##### Safe Drinking Water Act Maximum Contaminant Levels

None.

#### International Regulations

##### European Inventory of Existing Commercial Substances (EINECS)

Solvent Naphtha (petroleum), heavy aromatic 64742-94-5

## SECTION 16. OTHER INFORMATION

#### NFPA 704 (National Fire Protection Association):

Health - 1      Flammability - 1      Instability - 0      Others - none

#### HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 2      Flammability - 1      Physical Hazard - 0      PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Product owner information in multiple sections.

Revision Date: 04/11/2018

Prepared by FMC Corporation

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