



**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 (Albaugh)	PCP # 32311 SDS Date: 04/10/2019
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: 04/16/2020

Member of CropLife Canada

®/TM Registered trademarks/trademarks of FMC Corporation or an affiliate.

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

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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.

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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 ₂), Nitrogen oxides (NO _x)

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	:	

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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.

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

Reproductive toxicity : No toxicity to reproduction

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

Thifensulfuron methyl

96 h LC50 : Oncorhynchus mykiss (rainbow trout) > 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) > 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.

Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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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Predicade™ Broadleaf

Version 1.0

Revision Date 03/01/2018

Ref. 130000140976

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.

SAFETY DATA SHEET

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

Product Name: Albaugh MCPA Ester 600

PCP Reg. No.: 32311

Product use: Herbicide

Supplier's name and address:

Albaugh, LLC
1525 NE 36th St.
Ankeny, IA 50021
1-800-247-8013

Emergency Telephone #:
1-800-424-9300 (CHEMTREC)

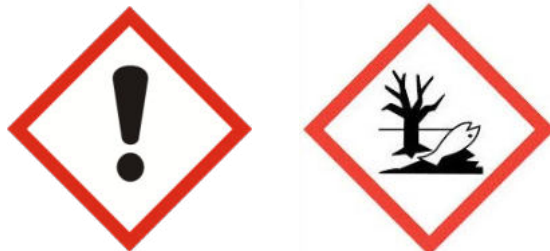
SECTION 2 — HAZARDS IDENTIFICATION

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.



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.

SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component	CAS No.	Percentage (%)
MCPA 2-ethylhexyl ester	29450-45-1	55-58
Petroleum distillates (contains)	64742-47-8	2-3

Other ingredients are considered non-hazardous.

Content Listed on Product Label
MCPA, present as 2-ethylhexyl ester 600 g a.e./L

SECTION 4 — FIRST AID MEASURES

If Swallowed: call a poison control center or doctor immediately for treatment advice. 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

If on Skin or Clothing: 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.

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.

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.

Take the container, label or product name and Pest Control Product Registration Number with you when calling a poison control center or doctor or going for treatment.

SECTION 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 classified 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

SECTION 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.

SECTION 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. Avoid breathing spray mist. 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.

SECTION 8 — EXPOSURE CONTROLS AND PERSONAL PROTECTION

Control Parameters:

Component	TWA*	STEL*	Note
MCPA 2-ethylhexyl ester	N/E	N/E	None found
Petroleum distillates (contains)	1200 mg/m ³	N/E	Manufactures recommendation, total hydrocarbon

*Time Weighted Average, 8-hour unless otherwise noted

**Short Term Exposure Level

N/E – Not Established

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

Personal Protective Equipment: Wear a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. Applicators using a closed cab are not required to wear chemical resistant gloves. The field crew and the mixer/loaders must wear long-sleeved shirt, long pants and coveralls, chemical resistant gloves and goggles or face shield during mixing/loading, cleanup and repair.

SECTION 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.

Physical state and appearance: Clear amber liquid
Odor: Slight aromatic and phenolic
Odor Threshold: No data
pH: 3.5 to 4.5 (1% aqueous solution)
Melting Point: No data
Freezing Point: < 32°F/ 0°C
Boiling Point: No data
Flash Point: >100°C
Evaporation Rate: No data
Flammability: No data
Explosive Limits: No data
Vapor Pressure: No data
Vapor Density: No data
Density: 1.04 to 1.08 g/cm³ @ 68°F/20°C
Solubility: In water: Emulsifies
Partition Coefficient: No data
Auto Ignition Temperature: No data
Decomposition Temperature: No data
Viscosity:..... No data

SECTION 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.

SECTION 11 — TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals. Data obtained on similar products and on components are summarized below.

Acute oral toxicity Rat, LD50: >1,000 mg/Kg

Acute dermal toxicity Rabbit, LD50: >2,000 mg/Kg

Acute inhalation toxicity Rat, LD50: >2.5 mg/L

Skin irritation Rabbit: Slight

Eye irritation Rabbit: Moderate

Skin sensitization Guinea Pig: Potential sensitizer

Mutagenicity: Mixed results in animal studies but weight of evidence indicate that MCPA is not mutagenic.

Chronic effects/carcinogenicity: IARC – 2B (chlorophenoxy herbicides)

Toxicity to reproduction/fertility: Animal studies have noted testicular effects and lower male fertility

Developmental toxicity/teratogenicity: Animal studies have noted decreased fetal body weights at doses toxic to mother animals.

SECTION 12 — ECOLOGICAL INFORMATION

This section is intended for use by eco-toxicologists and other environmental specialists. Data obtained on similar products and on components are summarized below.

Ecotoxicity: (Technical)

Aquatic Toxicity:

Rainbow trout: 96-Hour LC₅₀ (mg/L).....3.2

Bluegill sunfish: 96-Hour LC₅₀ (mg/L)>3.2

Daphnia: 48-Hour EC₅₀ (mg/L)0.28

Algae: Selenastrum 20-Hpur EC₅₀ (mg ae/L)..... 0.25

Algae: Navicula 120-Hpur EC₅₀ (mg ae/L).....1.25

Algae: Skeletonema 120-Hpur EC₅₀ (mg ae/L)..... 0.085

Avian toxicity

Bobwhite quail: Oral LD₅₀ (mg/kg)..... >2250

..... Dietary LDD₅₀ (mg ae/kg bw/d).....>3800

Mallard duck: Dietary LDD₅₀ (mg ae/kg bw/d).....>930

Arthropod toxicity:

Honey bee: LD₅₀ >210 µg 500 g/L MCPA 2EH formulation/bee (contact)

..... LD₅₀ >250 µg 500 g/L MCPA 2EH formulation/bee (oral)

Soil organism toxicity, invertebrates:

Earthworm:..... No data

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.

Bioaccumulation Potential: Negligible.

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

Other Adverse Effects: No data.

SECTION 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.

SECTION 14 — TRANSPORTATION INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

CANADA:

TDG Classification – 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 Classification:

< 119 gallons per complete package
Non-Regulated

≥ 119 gallons per complete package
NA 3082, Environmentally hazardous substance, liquid, n.o.s. (MCPA Ester), 9, III Marine Pollutant

SECTION 15 — REGULATORY INFORMATION

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



WARNING POISON

SECTION 16 — OTHER INFORMATION

This Safety Data Sheet (SDS) is designed to comply with the Globally Harmonized System (GHS) of chemical hazard classification. The information given here is not necessarily exhaustive but is representative of relevant, reliable data. Follow all local/regional/national/international regulations.

HMIS Rating: 2 Health; 1 Flammability; 0 Reactivity

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE Pest Management Regulatory (PMRA)- APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS 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, while the labeling provides that information specifically for product use in the ordinary course. Use, storage and disposal of pesticide products are regulated by product labeling and provincial legislation, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the PMRA-approved label.

Prepared by: Albaugh, LLC

Preparation date: 04/10/2019

Revision date: 04/10/2019

Revised For: Revised for GHS formatting



Material Safety Data Sheet

Issue Date: 03/01/2018

1. PRODUCT AND COMPANY IDENTIFICATION

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)

2. HAZARDS IDENTIFICATION

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.

3. COMPOSITION/INFORMATION ON INGREDIENTS

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 %

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. 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.

5. FIREFIGHTING MEASURES

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.

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. 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.

7. HANDLING AND STORAGE

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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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 ³
N-Methyl-2-pyrrolidone	US WEEL	TWA	10 ppm
	US WEEL	TWA	Absorbed via skin
	CA ON OEL	TWA	400 mg/m ³
	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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

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

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

10. STABILITY AND REACTIVITY

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.

11. TOXICOLOGICAL INFORMATION

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.

12. ECOLOGICAL INFORMATION

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.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

TD ;

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

Classification for SEA transport (IMO-IMDG):

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

Classification for AIR transport (IATA/ICAO):

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

15. REGULATORY INFORMATION

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

16. OTHER INFORMATION

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

General	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Eye	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.
Skin	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.
Ingestion	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.
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 physician or poison control center immediately.
Notes to physician	
Signs and Symptoms	No symptoms known or expected.
Treatment	There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5. FIRE FIGHTING MEASURES

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



Safety Data Sheet

Predicade™ Grass Herbicide

SDS Number: 102000014337
SDS Version 2.1.D

Explosiveness	no data available
Fire and Explosion Hazards	In the event of fire the following may be released: Hydrogen cyanide (hydrocyanic acid) Carbon monoxide (CO) Nitrogen oxides (NOx) Sulphur oxides
Suitable extinguishing media	Water spray, Carbon dioxide (CO2), Foam, Sand
Fire Fighting Instructions	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.
Dust explosion class	Not applicable.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

SECTION 7. HANDLING AND STORAGE

Handling procedures	Use only in area provided with appropriate exhaust ventilation. Keep away from heat and sources of ignition.
Storing Procedures	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.
Work/Hygienic Procedures	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

General Protection	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.
Eye/Face Protection	Chemical resistant goggles must be worn.
Hand protection	Chemical resistant nitrile rubber gloves
Body Protection	Wear long-sleeved shirt and long pants and shoes plus socks.
Respiratory protection	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

Thiocarbazono-methyl	317815-83-1	10 mg/m ³
Mefenpyr-diethyl	135590-91-9	10 mg/m ³

*

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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



Safety Data Sheet

Predicade™ Grass Herbicide

SDS Number: 102000014337
SDS Version 2.1D

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

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatibility	Store only in the original container.
Hazardous Decomposition Products	No decomposition products expected under normal conditions of use.
Hazardous reactions	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, Thiencazuron-methyl, as well as, the herbicide safener, Mefenpyr-diethyl.

Acute oral toxicity	female rat: LD50: > 2,000 mg/kg
Acute dermal toxicity	rat: LD50: > 2,000 mg/kg
Acute inhalation toxicity	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.
Skin irritation	rabbit: Moderate skin irritation.



Safety Data Sheet

Predicade™ Grass Herbicide

SDS Number: 102000014337
SDS Version 2.1D

Eye irritation	rabbit: Moderate eye irritation.
Sensitisation	mouse: Non-sensitizing. OECD Test Guideline 429, local lymph node assay (LLNA)
Chronic toxicity	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.

Reproductive toxicity	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.
Developmental Toxicity	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.
Mutagenicity	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

Toxicity to fish	Rainbow trout (<i>Oncorhynchus mykiss</i>)
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Safety Data Sheet

Predicade™ Grass Herbicide

SDS Number: 102000014337

SDS Version 2.1D

	LC50: > 104 mg/l Exposure time: 96 h
Toxicity to aquatic plants	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
Acute Toxicity to Aquatic Invertebrates	Water flea (Daphnia magna) EC50: > 98.6 mg/l Exposure time: 48 h
Stability in soil	Not applicable for this mixture.
Bioaccumulation	Not applicable for this mixture.
Environmental precautions	Do not allow to get into surface water, drains and ground water.
Ecological Information	The ecological data given are those of the active ingredient.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance	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.
Container Disposal	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

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



Safety Data Sheet

Predicade™ Grass Herbicide

SDS Number: 102000014337
SDS Version 2.1D

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.
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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



Safety Data Sheet

Predicade™ Grass Herbicide

SDS Number: 102000014337
SDS Version 2.1D

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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