

MATERIAL SAFETY DATA SHEET

Anthem® Flex Herbicide

MSDS #: 7351-A
Revision date: 2014-07-23
Version 1



This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 And Canadian Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Anthem® Flex Herbicide
Formula code	7351
Active Ingredient(s)	Pyroxasulfone; Carfentrazone-ethyl
Synonyms	<p>PYROXASULFONE: 3-[5-(difluoromethoxy)-1-methyl-3-(trifluoromethyl)pyrazol-4-ylmethylsulfonyl]-4,5-dihydro-5,5-dimethyl-1,2-oxazole; 3-[[[5-(difluoromethoxy)-1-methyl-3-(trifluoromethyl)-1H-pyrazol-4-yl]methyl]sulfonyl]-4,5-dihydro-5,5-dimethylisoxazole;</p> <p>CARFENTRAZONE-ETHYL (FMC 116426): ethyl (RS)-2-chloro-3-[2-chloro-5-(4-difluoromethyl-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl)-4-fluorophenyl] propionate; ethyl α,2-dichloro-5-[4-(difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-1,2,4-triazol-1-yl]-4-fluorobenzenepropanoate</p>
Chemical Family	Sulfonylioxazoline; Triazolinones
Recommended Use:	Herbicide
Alternate Commercial Name	F9312-3
<u>Manufacturer</u> FMC Corporation Agricultural Solutions 1735 Market Street Philadelphia, PA 19103 General Information: Phone: (215) 299-6000 E-Mail: msdsinfo@fmc.com	<u>Emergency telephone number</u> Medical Emergencies: 1 800 / 331-3148 (PROSAR - U.S.A. & Canada) 1 651 / 632-6793 (PROSAR - All Other Countries - Collect) For leak, fire, spill or accident emergencies, call: 1 800 / 424 9300 (CHEMTREC - U.S.A.) 1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

2. HAZARDS IDENTIFICATION

<u>Appearance</u>	Liquid
<u>Physical State</u>	Liquid
<u>Odor</u>	Not identified
<u>Potential Health Effects</u> Principal Routes of Exposure	Eye Contact, Skin Contact, Inhalation, Ingestion
Acute Effects Eyes	May cause slight irritation.

Skin May cause moderate skin irritation.
Inhalation May cause irritation of respiratory tract.
Ingestion Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause central nervous system depression.

Chronic Effects Carfentrazone-ethyl: Long-term exposure caused hematotoxicity and deposit of porphyrin in the liver in animal studies.

Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous ingredients

Chemical name	CAS-No	Weight %
Carfentrazone-ethyl	128639-02-1	2.7
Pyroxasulfone	447399-55-5	37.1
Propylene glycol	57-55-6	1-5
Naphtha (petroleum), heavy aromatic	64742-94-5	1-5

4. FIRST AID MEASURES

Eye Contact Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

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

Inhalation Move person to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Ingestion Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Notes to Physician Treatment is symptomatic and supportive.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media Carbon dioxide (CO₂), Foam, Dry powder, Water spray.

Hazardous Combustion Products Carbon oxides, Hydrogen chloride, Hydrogen fluoride, Nitrogen oxides (NO_x).

Protective equipment and precautions for firefighters Wear self-contained breathing apparatus and protective suit.

NFPA
Health Hazards

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Flammability 1
Stability 0
Special Hazards -

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

Environmental Precautions Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.

Methods for Containment Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

Other For further clean-up instructions call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

7. HANDLING AND STORAGE

Handling Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

Storage Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Keep/store only in original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Propylene glycol 57-55-6			TWA: 10 mg/m ³ (aerosol only) TWA: 50 ppm (aerosol and vapor) TWA: 155 mg/m ³ (aerosol and vapor)	

Occupational exposure controls

Engineering measures Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal protective equipment

General information If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory Protection For dust, splash, mist or spray exposures wear a filtering mask.

Eye/Face Protection For dust, splash, mist or spray exposure, wear chemical protective goggles.

Skin and Body Protection	Wear long-sleeved shirt, long pants, socks, shoes, and gloves.
Hand Protection	Protective gloves
Hygiene measures	Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Liquid
Physical State	Liquid
Odor	Not identified
pH	5.36 (1% solution)
Boiling Point/Range	No information available
Flash point	> 100 °C / > 212 °F
Density	10.06 lb/gal; 1.21 g/ml
Water solubility	No information available
Viscosity	1021 cSt @ 22.6°C; 769.1 cSt @ 42.8°C
Decomposition temperature	No information available

10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Conditions to Avoid	Heat, flames and sparks.
Hazardous Decomposition Products	Carbon oxides, Hydrogen chloride, Hydrogen fluoride, Nitrogen oxides (NOx).
Hazardous polymerization	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Effects

Eye Contact	Minimally irritating (rabbit)
Skin Contact	Moderately irritating (rabbit)

LD50 Dermal	> 2000 mg/kg (rat)
LD50 Oral	> 5000 mg/kg (rat)
Inhalation LC50	> 2.08 mg/l (4-hr) (rat)

Sensitization	Non-sensitizing
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Chronic Effects

Chronic toxicity	Carfentrazone-ethyl: Long-term exposure caused hematotoxicity and deposit of porphyrin in the liver in animal studies. Chronic exposure to aromatic hydrocarbons may cause headaches, dizziness, loss of sensations or feelings (such as numbness), and liver and kidney damage.
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Carcinogenicity Carfentrazone-ethyl : No evidence of carcinogenicity from animal studies.
 Pyroxasulfone: Increased incidence of urinary bladder transitional papillomas was reported in male rat in two-year carcinogenicity study. Limited evidence of carcinogenic effects.

Mutagenicity Carfentrazone-ethyl , Pyroxasulfone: Not genotoxic in animal studies.

Reproductive toxicity Carfentrazone-ethyl : No toxicity to reproduction in animal studies.
 Pyroxasulfone: Any signs of effect to fertility or embryo were not observed in rat one-generation and two generation reproductive studies at the dosage of which general toxicity to parental animals was observed. However, developmental toxicity was observed in offspring in a rat. May cause harm to the unborn child.

Neurological effects Carfentrazone-ethyl , Pyroxasulfone: Not neurotoxic.

Developmental toxicity Carfentrazone-ethyl : Not teratogenic in animal studies.
 Pyroxasulfone: Developmental toxicity was observed in rat offspring. May cause harm to unborn child.

Target organ effects Carfentrazone-ethyl : None known.
 Pyroxasulfone: liver, kidney, Bladder, Cardiovascular System.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects

Carfentrazone-ethyl (128639-02-1)				
Active Ingredient(s)	Duration	Species	Value	Units
Carfentrazone-ethyl	72 h EC50	Algae	0.012	mg/l
	96 h LC50	Fish	1.6	mg/l
	48 h LC50	Daphnia	>9.8	mg/l
	96 h NOEC	Algae	1.0	µg/L
	21 d NOEC	Fish	0.0187	mg/l
	21 d NOEC	Crustacea	0.22	mg/l

Pyroxasulfone (447399-55-5)				
Active Ingredient(s)	Duration	Species	Value	Units
Pyroxasulfone	96 h LC50	Rainbow trout	>2.2	mg/l
	96 h LC50	Bluegill sunfish	>2.8	mg/l
	48 h EC50	Daphnia magna	>4.4	mg/l
	96 h LC50	Algae	0.00079	mg/l

Environmental Fate

Persistence and degradability Carfentrazone-ethyl : Non-persistent. Readily hydrolyzed. Not readily biodegradable.
 Pyroxasulfone: DT50 in soil = 16-26 days.

Bioaccumulation Carfentrazone-ethyl : The substance does not have a potential for bioconcentration.
 Pyroxasulfone: The substance has a low potential to bioaccumulate in the environment.

Mobility Carfentrazone-ethyl : Not relevant:
 Pyroxasulfone: Mobile

13. DISPOSAL CONSIDERATIONS

Waste disposal methods	Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.
Contaminated Packaging	Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions. Do not reuse or refill this container.

14. TRANSPORT INFORMATION

<u>DOT</u>	This material is not a hazardous material as defined by U.S. Department of Transportation at 49 CFR Parts 100 through 185.
Packaging Type	Bulk, Non-Bulk
<u>TDG</u>	Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.
UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
Marine Pollutant	Pyroxasulfone, Carfentrazone-ethyl .
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Pyroxasulfone, Carfentrazone-ethyl), 9, PG III, Marine Pollutant
<u>ICAO/IATA</u>	
UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
Marine Pollutant	Pyroxasulfone, Carfentrazone-ethyl
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Pyroxasulfone, Carfentrazone-ethyl), 9, PG III, Marine Pollutant
<u>IMDG/IMO</u>	
UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
EmS No.	F-A, S-F
Marine Pollutant	Pyroxasulfone, Carfentrazone-ethyl
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Pyroxasulfone, Carfentrazone-ethyl), 9, PG III, Marine Pollutant

15. REGULATORY INFORMATION**U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical name	CAS-No	Weight %	SARA 313 - Threshold Values %
Formaldehyde	50-00-0	0.000177	0.1
Naphthalene	91-20-3	0.4180017	0.1

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic health hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

TSCA (United States)

International Regulations

Mexico - Grade Moderate risk, Grade 2

CANADA

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

WHMIS Hazard Class D2B - Toxic materials



16. OTHER INFORMATION

Revision date: 2014-07-23
Reason for revision: Initial Release.

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End of Safety Data Sheet