1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name**
Anthem® Flex Herbicide

**Formula code**
7351

**Active Ingredient(s)**
Pyroxasulfone; Carfentrazone-ethyl

**Synonyms**
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;
CARFENTRAZONE-ETHYL (FMC 116426): ethyl (RS)-2-chloro-3-[2-chloro-5-(4-difluoromethyl)-4,5-dihydro-3-methyl-5-oxo-1H-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

**Chemical Family**
Sulfonyloxazoline; Triazolinones

**Recommended Use:**
Herbicide

**Alternate Commercial Name**
F9312-3

**Manufacturer**
FMC Corporation
Agricultural Solutions
1735 Market Street
Philadelphia, PA 19103

**Emergency telephone number**
Medical Emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - All Other Countries - Collect)

General Information:
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

**Appearance**
Liquid

**Physical State**
Liquid

**Odor**
Not identified

**Potential Health Effects**
Eye Contact, Skin Contact, Inhalation, Ingestion

**Principal Routes of Exposure**
Eye Contact, Skin Contact, Inhalation, Ingestion

**Acute Effects**
Eyes
May cause slight irritation.
Anthem® Flex Herbicide

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

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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carfentrazone-ethyl</td>
<td>128639-02-1</td>
<td>2.7</td>
</tr>
<tr>
<td>Pyroxasulfone</td>
<td>447399-55-5</td>
<td>37.1</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>57-55-6</td>
<td>1-5</td>
</tr>
<tr>
<td>Naphtha (petroleum), heavy aromatic</td>
<td>64742-94-5</td>
<td>1-5</td>
</tr>
</tbody>
</table>

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 (NOx).

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

NFPA
Health Hazards
1
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

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>British Columbia</th>
<th>Quebec</th>
<th>Ontario TWAEV</th>
<th>Alberta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol 57-55-6</td>
<td></td>
<td></td>
<td>TWA: 10 mg/m³ (aerosol only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA: 50 ppm (aerosol and vapor)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TWA: 155 mg/m³ (aerosol and vapor)</td>
<td></td>
</tr>
</tbody>
</table>

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.
Anthem® Flex Herbicide

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

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

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

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.
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

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

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Duration</th>
<th>Species</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyroxasulfone (447399-55-5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96 h LC50</td>
<td></td>
<td>Rainbow trout</td>
<td>&gt;2.2</td>
<td>mg/l</td>
</tr>
<tr>
<td>96 h LC50</td>
<td></td>
<td>Bluegill sunfish</td>
<td>&gt;2.8</td>
<td>mg/l</td>
</tr>
<tr>
<td>48 h EC50</td>
<td></td>
<td>Daphnia magna</td>
<td>&gt;4.4</td>
<td>mg/l</td>
</tr>
<tr>
<td>96 h LC50</td>
<td></td>
<td>Algae</td>
<td>0.00079</td>
<td>mg/l</td>
</tr>
</tbody>
</table>

Environmental Fate

Persistence and degradability


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

DOT
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

TDG
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

ICAO/IATA
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

IMDG/IMO
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

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:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>0.000177</td>
<td>0.1</td>
</tr>
<tr>
<td>Naphthalene</td>
<td>91-20-3</td>
<td>0.4180017</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Anthem® Flex Herbicide

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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Prepared By:
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End of Safety Data Sheet