# MATERIAL SAFETY DATA SHEET

**Syngenta Crop Protection, Inc.**
**Post Office Box 18300**
**Greensboro, NC 27419**

**In Case of Emergency, Call**
**1-800-888-8372**

## 1. PRODUCT IDENTIFICATION

Product Name: **FUSION HERBICIDE** Product No.: A12869A

EPA Signal Word: Warning

Active Ingredient(%): Fenoxaprop-P-Ethyl (6.76%) CAS No.: 71283-80-2

Chemical Name: (D+)-ethyl 2-(4-(6-chloro-2-benzoxazolyloxy)-phenoxy)propanoate

Chemical Class: Benzoxazole Herbicide

Active Ingredient(%): Fluazifop-P-Butyl Technical (24.15%) CAS No.: 79241-46-6

Chemical Name: Butyl(RS)-2-[4-[[5-(trifluoromethyl)-2-pyridinyl]oxy]phenoxy]propanoate

Chemical Class: A post emergence herbicide

EPA Registration Number(s): 100-1059 **Section(s) Revised: 1**

## 2. HAZARDS IDENTIFICATION

Health and Environmental

May be harmful if swallowed or in contact with skin. Irritating to eye, respiratory tract and skin. Vapors may cause drowsiness or dizziness. May be harmful if swallowed and enters airway.

Combustible liquid.

Hazardous Decomposition Products

None known.

Physical Properties

Appearance: Uniform dark brown liquid, insoluble material free

Odor: Aromatic

Unusual Fire, Explosion and Reactivity Hazards

Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Material | OSHA PEL | ACGIH TLV | Other | NTP/IARC/OSHA Carcinogen |
|---|---|---|---|---|
| Petroleum Solvent | Not Established | Not Established | 100 mg/m³ (15-17 ppm) TWA * | No |
| 1,2,4-Trimethylbenzene (< 5%) | Not Established | 25 ppm TWA | 25 ppm TWA ** | No |
| Naphthalene (< 10%) | 10 ppm TWA | 10 ppm TWA (skin) | 10 ppm TWA ** | See "Toxicity", Sec. 11 |
| Xylene (< 5%) | 100 ppm TWA | 100 ppm TWA; 150 ppm STEL | 100 ppm TWA ** | IARC Group 3 |

| | | | | |
|---|---|---|---|---|
| Fluazifop-P-Butyl Technical (24.15%) | Not Established | Not Established | 0.5 mg/m³ TWA *** | No |
| Fenoxaprop-P-Ethyl (6.76%) | Not Established | Not Established | Not Established | No |

* recommended by manufacturer

** recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: C, S

## 4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison contol center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Contains petroleum distillate - vomiting may cause aspiration pneumonia.

Medical Condition Likely to be Aggravated by Exposure

None known.

## 5. FIRE FIGHTING MEASURES

Fire and Explosion

| | | |
|---|---|---|
| Flash Point (Test Method): | 149°F (method not available) | |
| Flammable Limits (% in Air): | Lower: Not Applicable | Upper: Not Applicable |
| Autoignition Temperature: | Not Available | |
| Flammability: | Combustible liquid | |

Unusual Fire, Explosion and Reactivity Hazards

Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use appropriate extinguishing media for combustibles in the area. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

## 6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

## 7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.**

**FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.**

| | |
|---|---|
| Ingestion: | Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling. |
| Eye Contact: | Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. |
| Skin Contact: | Where contact is likely, wear chemical-resistant gloves (such as barrier laminate or Viton), coveralls, socks and chemical-resistant footwear. |
| Inhalation: | A combination particulate/organic vapor respirator should be used until effective engineering controls are installed to comply with occupational exposure limits, or until exposure limits are established. Use a NIOSH certified respirator with an organic vapor (OV) cartridge or canister with any R, P or HE filter.<br><br>Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|---|
| Appearance: | Uniform dark brown liquid, insoluble material free |
| Odor: | Aromatic |
| Melting Point: | Not Applicable |
| Boiling Point: | Not Available |
| Specific Gravity/Density: | 0.9983 g/ml |
| pH: | 5.8 (1% w/w dilution in deionized water) |

Solubility in H2O

| | |
|---|---|
| Fenoxaprop-P-Ethyl : | 0.7 - 0.8 mg/l @ 77°F (25°C) |
| Fluazifop-P-Butyl Technical: | Almost insoluble in water (1 mg/l @ pH 5 - 6.5) |

Vapor Pressure

| | |
|---|---|
| Fenoxaprop-P-Ethyl : | 1.4 x 10(-6) mmHg @ 68°F (20°C) |
| Fluazifop-P-Butyl Technical: | 4.5 x 10(-7) mmHg @ 68°F (20°C) |

## 10. STABILITY AND REACTIVITY

| | |
|---|---|
| Stability: | Stable under normal use and storage conditions. |
| Hazardous Polymerization: | Will not occur. |
| Conditions to Avoid: | None known. |
| Materials to Avoid: | Oxidizing agents. |

Hazardous Decomposition Products: None known.

## 11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

| | | |
|---|---|---|
| Ingestion: | | |
| | Oral (LD50 Rabbit) : | 3154 mg/kg body weight |
| Dermal: | | |
| | Dermal (LD50 Rabbit) : | > 2000 mg/kg body weight |
| Inhalation: | | |
| | Inhalation (LC50 Rat) : | > 5.02 mg/l air - 4 hours |
| Eye Contact: | Moderately Irritating (Rabbit) | |
| Skin Contact: | Moderately Irritating (Rabbit) | |
| Skin Sensitization: | Not Available | |

Reproductive/Developmental Effects

Fenoxaprop-P-Ethyl : Evidence of developmental toxicity at maternally toxic doses. No reproductive or developmental risk to humans.

Fluazifop-P-Butyl Technical: Embryo/foetoxic effects have been reported in rats. Did not show teratogenic effects in animal experiments.

Chronic/Subchronic Toxicity Studies

Fenoxaprop-P-Ethyl : Increased liver weights, changes in enzyme, cholesterol and lipid levels, and histopathology findings in rodents and dogs.

Fluazifop-P-Butyl Technical: Effects on red cells, bone marrow, liver and spleen observed in long-term high dose feeding tests in dogs. No adverse health effects are expected in humans at airborne levels below the occupational exposure limit.

Carcinogenicity

Fenoxaprop-P-Ethyl : Increased incidence of liver tumors in mice at hepatotoxic doses only. Results have little if any relevance to humans.

Fluazifop-P-Butyl Technical: Did not show mutagenic effects in animal experiments. Did not show carcinogenic effects in animal experiments.

Other Toxicity Information

None

Toxicity of Other Components

1,2,4-Trimethylbenzene (< 5%)

Test results reported in Section 11 for the final product take into account any acute hazards related to the 1,2,4-trimethylbenzene in the formulation.

Naphthalene (< 10%)

Test results reported in Section 11 for the final product take into account any acute hazards related to the naphthalene in the formulation.
Chronic overexposure to naphthalene can affect the liver, kidney, respiratory tract and blood.
Carcinogen Status:
NTP: Anticipated Carcinogen
IARC: Group 2B Possible Human Carcinogen

Petroleum Solvent

Inhalation of vapors at high concentrations can cause central nervous system effects (dizziness, headache), irritation to eyes or respiratory tract.

Xylene (< 5%)

Test results reported in Section 11 for the final product take into account any acute hazards related to the xylene in the formulation.

Target Organs

Active Ingredients

Fenoxaprop-P-Ethyl : Liver, eye

Fluazifop-P-Butyl Technical: Blood, bone marrow, liver, spleen

Inert Ingredients

1,2,4-Trimethylbenzene: Not Applicable

Naphthalene: Liver, kidney, respiratory tract, blood

Petroleum Solvent: Respiratory tract, stomach, liver, thyroid, urinary bladder, CNS, skin

Xylene: Not Applicable

## 12. ECOLOGICAL INFORMATION

Ecotoxicity Effects

Fluazifop-P-Butyl Technical:

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 6.02 ppm

Green Algae 4-day EC50 > 1.8 ppm

Bird (Mallard Duck) 14-day LD50 > 3528 mg/kg

Fenoxaprop-P-Ethyl :

Fish (Bluegill Sunfish) 96-hour LC50 0.31 - 0.58 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 > 1.058 mg/l

Bird (Bobwhite Quail) LD50 > 2000 mg/kg

Environmental Fate

Fenoxaprop-P-Ethyl :

The information presented here is for the active ingredient, fenoxaprop-p-ethyl.
Slightly soluble in water, absorbs strongly to soils, and has low mobility.

Fluazifop-P-Butyl Technical:

The information presented here is for the active ingredient, fluazifop-p-butyl.
Not persistent in soil or water.

## 13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

## 14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA
< 119 gal: Not regulated.
> 119 gal:
Proper Shipping Name: Combustible Liquid, N.O.S. (Naphthalene, Petroleum Solvent)
Hazard Class: Combustible Liquid
Identification Number: NA 1993
Packing Group: PG III

Comments

Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Fluazifop-P-Butyl, Fenoxaprop-P-Ethyl), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Fluazifop-P-Butyl, Fenoxaprop-P-Ethyl)
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III
Note: This product is currently not regulated for airfreight within the NAFTA region. However, effective 01/01/2011 the above classification must be used.

## 15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard
Fire Hazard

Section 313 Toxic Chemicals: 1,2,4-Trimethylbenzene (< 5%) (CAS No. 95-63-6)
Naphthalene (< 10%) (CAS No. 91-20-3)
Xylene (< 5%) (CAS No. 1330-20-7)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

>1,300 lbs (based on naphthalene, CAS # 91-20-3 [RQ = 100 lbs] in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

## 16. OTHER INFORMATION

| NFPA Hazard Ratings | | HMIS Hazard Ratings | |
|---|---|---|---|
| Health: | 2 | Health: | 2 |
| Flammability: | 2 | Flammability: | 2 |
| Instability: | 0 | Reactivity: | 0 |

| | |
|---|---|
| 0 | Minimal |
| 1 | Slight |
| 2 | Moderate |
| 3 | Serious |
| 4 | Extreme |

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 10/19/1998
Revision Date: 10/25/2010 Replaces: 10/20/2010

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End of MSDS