

# MATERIAL SAFETY DATA SHEET

## BIFENTHRIN ST INSECTICIDE



MSDS Ref. No.: 82657-04-3-108

Date Approved: 03/21/2005

Revision No.: 2

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This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200; the EC directive, 2001/58/EC and other regulatory requirements. The information contained herein is for the concentrate as packaged, unless otherwise noted.

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## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** BIFENTHRIN ST INSECTICIDE  
**PRODUCT CODE:** 6166  
**ACTIVE INGREDIENT(S):** Bifenthrin  
**CHEMICAL FAMILY:** Pyrethroid Pesticide  
**MOLECULAR FORMULA:** C<sub>23</sub>H<sub>22</sub>ClF<sub>3</sub>O<sub>2</sub> (bifenthrin)  
**SYNONYMS:** FMC 54800; (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate; IUPAC: 2-methylbiphenyl-3-ylmethyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate  
**ALTERNATE PRODUCT NAME(S):** Semafor 20 ST

### MANUFACTURER

FMC CORPORATION  
Agricultural Products Group  
1735 Market Street  
Philadelphia, PA 19103  
(215) 299 6000 (General Information)

### EMERGENCY TELEPHONE NUMBERS

(800) 424-9300 (CHEMTREC - U.S.A. & Canada)  
(703) 527-3887 (CHEMTREC - All Other Countries)  
(800) 331-3148 (FMC - U.S.A. & Canada)  
(716) 735-3765 (FMC - Reverse charges)

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## 2. HAZARDS IDENTIFICATION

### EMERGENCY OVERVIEW:

- Red liquid with a faint odor.
- Slightly combustible. May support combustion at elevated temperatures.
- Thermal decomposition and burning may form toxic by-products.
- For large exposures or fire, wear personal protective equipment.
- Highly toxic to fish and aquatic organisms. Keep out of drains and water courses.

**POTENTIAL HEALTH EFFECTS:** Effects from overexposure result from either swallowing or coming into contact with the skin. Symptoms of overexposure include bleeding from the nose, tremors and convulsions. Contact with bifenthrin may occasionally produce skin sensations such as rashes, numbing, burning or tingling. These skin sensations are reversible and usually subside within 12 hours.

**MEDICAL CONDITIONS AGGRAVATED:** None presently known.

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### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Bifenthrin	82657-04-3	19.26	None	R25-20-43-50/53; S1/2-23-24-37-38-45-29
Propylene Glycol	57-55-6	<6	200-338-0	Not classified
Surfactant Blend		<3.8	None	Not classified

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### 4. FIRST AID MEASURES

**EYES:** Flush with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

**SKIN:** Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

**INGESTION:** Drink 1 or 2 glasses of water and induce vomiting by touching the back of the throat with a finger. Never induce vomiting or give anything by mouth to an unconscious person. Contact a medical doctor.

**INHALATION:** Remove to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention.

**NOTES TO MEDICAL DOCTOR:** This product has low oral, dermal and inhalation toxicity. It is non-irritating to the skin and eyes. It may cause skin sensitization on contact. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

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### 5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub> or dry chemical. Soft stream water fog only if necessary. Contain all runoff.

**FIRE / EXPLOSION HAZARDS:** Slightly combustible. This material may support combustion at elevated temperatures.

**FIRE FIGHTING PROCEDURES:** Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated.

## 6. ACCIDENTAL RELEASE MEASURES

**RELEASE NOTES:** Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

Keep material out of lakes, streams, ponds and sewer drains. Dike to confine spill and absorb with a non-combustible absorbent such as clay, sand or soil. Vacuum, shovel or pump waste into a drum and label contents for disposal.

To clean and neutralize spill area, tools and equipment, wash with a suitable solution of caustic or soda ash, and an appropriate alcohol (i.e., methanol, ethanol or isopropanol). Follow this by washing with a strong soap and water solution. Absorb, as above, any excess liquid and add to the drums of waste already collected. Repeat if necessary. Dispose of drummed waste according to the method outlined in Section 13, "Disposal Considerations".

## 7. HANDLING AND STORAGE

**HANDLING AND STORAGE:** Store in a cool, dry, well-ventilated place. Do not use or store near heat, open flame or hot surfaces. Store in original containers only. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Propylene Glycol		10.0 mg/m <sup>3</sup> (WEEL)	

**ENGINEERING CONTROLS:** Use local exhaust at all process locations where vapor or mist may be emitted. Ventilate all transport vehicles prior to unloading.

## PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** For splash, mist or spray exposure, wear chemical protective goggles or a face shield.

**RESPIRATORY:** For splash, mist or spray exposures wear, as a minimum, a properly fitted half-face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

**PROTECTIVE CLOTHING:** Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a PVC suit. Leather items - such as shoes, belts and watchbands - that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

**GLOVES:** Wear chemical protective gloves made of materials such as rubber, neoprene or nitrile. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

**WORK HYGIENIC PRACTICES:** Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking or using tobacco. Shower at the end of the workday.

### COMMENTS:

Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated above provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>ODOR:</b>	Faint
<b>APPEARANCE:</b>	Red liquid
<b>DENSITY / WEIGHT PER VOLUME:</b>	8.7 - 8.9 lb/gal. (1049 - 1064 g/L)
<b>MOLECULAR WEIGHT:</b>	422.88 (bifenthrin)
<b>SPECIFIC GRAVITY:</b>	1.049 - 1.064 g/mL

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## 10. STABILITY AND REACTIVITY

<b>CONDITIONS TO AVOID:</b>	Excessive heat and fire.
<b>STABILITY:</b>	Stable
<b>POLYMERIZATION:</b>	Will not occur

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide, hydrogen chloride and hydrogen fluoride.

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## 11. TOXICOLOGICAL INFORMATION

**EYE EFFECTS:** Non-irritating (rabbit)

**SKIN EFFECTS:** Non-irritating (rabbit)

**DERMAL LD<sub>50</sub>:** > 2,000 mg/kg (rat)

**ORAL LD<sub>50</sub>:** 536 mg/kg (rat)

**INHALATION LC<sub>50</sub>:** > 4.7 mg/l (4 h) (rat) Maximum attainable concentration - zero mortality

**SENSITIZATION:** It may cause skin sensitization on contact. (guinea pig)

**ACUTE EFFECTS FROM OVEREXPOSURE:** This product has low oral, dermal and inhalation toxicity. It is non-irritating to the skin and eyes. Large doses of bifenthrin ingested by laboratory animals produced signs of toxicity including convulsions, tremors and bloody nasal discharge. Bifenthrin does not cause acute delayed neurotoxicity. Experience to date indicates that contact with bifenthrin may occasionally produce skin sensations such as rashes, numbing, burning or tingling. These sensations are reversible and usually subside within 12 hours. In humans, ingestion of large amounts of propylene glycol has resulted in symptoms of reversible central nervous system depression including stupor, rapid breathing and heartbeat, profuse sweating and seizures.

**CHRONIC EFFECTS FROM OVEREXPOSURE:** No data available for the formulation. In studies with laboratory animals, bifenthrin did not cause reproductive toxicity or teratogenicity. Tremors were associated with repeated exposure of laboratory animals to bifenthrin. In lifetime feeding studies conducted with rodents, a slight increase in the incidence of urinary bladder tumors at the highest dose in male mice was considered to be an equivocal response, not evidence of a clear compound-related effect. The overall absence of genotoxicity has been demonstrated in mutagenicity tests with bifenthrin. Repeated overexposure to propylene glycol can produce central nervous system depression, hemolysis and minimal kidney damage.

### CARCINOGENICITY:

<b>NTP:</b>	Not listed
<b>IARC:</b>	Not listed
<b>OSHA:</b>	Not listed
<b>OTHER:</b>	Not Listed (ACGIH)

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## 12. ECOLOGICAL INFORMATION

Unless otherwise indicated, the data presented below are for the active ingredient.

**ENVIRONMENTAL DATA:** Bifenthrin has moderate stability in the soil under aerobic conditions (half-life range from 65 - 125 days depending on soil type) and is stable at a wide range of pH values. Bifenthrin has a high Log Pow (>6.0), a high affinity for organic matter, and is not mobile in soil. Therefore, there is little potential for movement into ground water. There is the potential for bifenthrin to bioconcentrate (BCF = 11,750).

**ECOTOXICOLOGICAL INFORMATION:** Bifenthrin is highly toxic to fish and aquatic arthropods and LC<sub>50</sub> values range from 0.0038 to 17.8 µg/L. In general, the aquatic arthropods are the most sensitive species. Care should be taken to avoid contamination of the aquatic environment. Bifenthrin had no effect on mollusks at its limit of water solubility. Bifenthrin is only slightly toxic to both waterfowl and upland game birds (LD<sub>50</sub> values range from 1,800 mg/kg to >2,150 mg/kg).

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## 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

**EMPTY CONTAINER:** Non-returnable containers that held this material should be cleaned, prior to disposal, by triple rinsing. Containers which held this material may be cleaned by being triple-rinsed, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

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## 14. TRANSPORT INFORMATION

### U.S. DEPARTMENT OF TRANSPORTATION (DOT)

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>ADDITIONAL INFORMATION:</b>	This material is not a hazardous material as defined by US Department of Transportation at 49 CFR Parts 100 through 185.
<b>PACKAGING TYPE:</b>	Bulk

<b>PROPER SHIPPING NAME:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>TECHNICAL NAME(S):</b>	Bifenthrin
<b>PRIMARY HAZARD CLASS / DIVISION:</b>	9
<b>UN/NA NUMBER:</b>	UN 3082
<b>PACKING GROUP:</b>	III
<b>MARINE POLLUTANT:</b>	Bifenthrin
<b>LABEL(S):</b>	9
<b>PLACARD(S):</b>	9
<b>MARKING(S):</b>	3082

### INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>PROPER SHIPPING NAME:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>TECHNICAL NAME(S):</b>	Bifenthrin
<b>PRIMARY HAZARD CLASS / DIVISION:</b>	9
<b>UN/NA NUMBER:</b>	UN 3082
<b>PACKING GROUP:</b>	III
<b>MARINE POLLUTANT:</b>	Bifenthrin
<b>LABEL(S):</b>	9
<b>PLACARD(S):</b>	9
<b>MARKING(S):</b>	Environmentally hazardous substance, liquid, n.o.s. (bifenthrin), UN3082 + Marine Pollutant
<b>ADDITIONAL INFORMATION:</b>	EmS Number: F-A, S-F

### ADR - EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY ROAD

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>PROPER SHIPPING NAME:</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>TECHNICAL NAME(S):</b>	Bifenthrin
<b>PRIMARY HAZARD CLASS / DIVISION:</b>	9
<b>CLASSIFICATION CODE:</b>	M6

<b>UN/NA NUMBER:</b>	UN3082
<b>PACKING GROUP:</b>	III
<b>HAZARD IDENTIFICATION NUMBER:</b>	90
<b>MARINE POLLUTANT:</b>	Bifenthrin
<b>LABEL(S):</b>	9
<b>PLACARD(S):</b>	9
<b>MARKING(S):</b>	UN3082 + Marine Pollutant

**INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) /  
INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)**

<b>PACKAGING TYPE:</b>	Non-Bulk
<b>ADDITIONAL INFORMATION:</b>	This material is not a dangerous good as defined in ICAO and the International Air Transport Association Dangerous Goods Regulations.  NOTE: You are allowed to identify this material as a Marine Pollutant when such identification is required by Country requirements. When identification as a Marine Pollutant is required, see 'Optional IATA Information' below.
<b>ADDITIONAL INFORMATION:</b>	<b>OPTIONAL IATA INFORMATION:</b> Packing Type: Non-bulk Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s. Technical Name(s): Bifenthrin Hazard Class: 9 ID Number Type: UN ID Number: 3082 Labels(s): 9 Packing Group: III Limited Quantity: Y914/ 30 kg Limited Quantity - Passenger Cargo: 914 / No Limit Limited Quantity - Cargo Aircraft Only: 914 / No Limit Marks: Environmentally hazardous substance, liquid, n.o.s. (bifenthrin), UN3082 + Marine Pollutant

**OTHER INFORMATION:**

HARMONIZED SYSTEM

Import to U.S.A.: 3808.10.2500

Export from the U.S.A.: 3808.10.0000

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## 15. REGULATORY INFORMATION

### UNITED STATES

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**

**SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):**

Not listed

**SECTION 311 HAZARD CATEGORIES (40 CFR 370):**

Immediate, Delayed

**SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):**

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.:  
None

**SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):**

Bifenthrin

**CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)**

**CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):**

Not listed

### INTERNATIONAL LISTINGS

Australian Hazard Code: 3XE

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## 16. OTHER INFORMATION

**REVISION SUMMARY:**

This MSDS replaces Revision #1, dated September 24, 2004.

Changes in information are as follows:

Section 2 (Hazards Identification)

Section 3 (Composition / Information on Ingredients)

Section 4 (First Aid Measures)

Section 11 (Toxicological Information)

Section 14 (Transport Information)

Section 15 (Regulatory Information)

Section 16 (Other Information)

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