

MATERIAL SAFETY DATA SHEET

BRIGADE® WSB INSECTICIDE/MITICIDE



MSDS Ref. No.: 82657-04-3-9

Date Approved: 10/15/2004

Revision No.: 10

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.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	BRIGADE® WSB INSECTICIDE/MITICIDE
PRODUCT CODE:	1197
ACTIVE INGREDIENT(S):	Bifenthrin
CHEMICAL FAMILY:	Pyrethroid Pesticide
MOLECULAR FORMULA:	$C_{23}H_{22}ClF_3O_2$ (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

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)
(202) 483-7616 (CHEMTREC - All Other Countries)
(800) 331-3148 (FMC - U.S.A. & Canada)
(716) 735-3765 (Reverse charges - FMC)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Light tan powder with a very faint, aromatic 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.
- Expected to have moderate inhalation and oral toxicity.

POTENTIAL HEALTH EFFECTS: Effects from overexposure result from either swallowing, inhaling or coming into contact with the skin. Symptoms of overexposure include bleeding

from the nose, tremors, convulsions and diarrhea. 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.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt.%	EC No.	EC Class
Bifenthrin	82657-04-3	10	None	R25-50/53; S1/2-45-29
Silica, quartz	14808-60-7	<5.6	238-878-4	Not classified
Surfactant Blend		<4	None	Not classified
Polyvinyl Alcohol	9002-89-5	<1.3	None	Not classified

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.

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, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: This product is expected to have moderate oral and inhalation, and low dermal toxicity. It is expected to be mildly irritating to the eyes and non-irritating to the skin. 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.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Foam, CO₂ 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. Large spills should be covered to prevent dispersal. For dry material, use a wet sweeping compound or water to prevent the formation of dust. If water is used, prevent runoff or dispersion of excess liquid by diking and absorbing with a non-combustible absorbent such as clay, sand or soil. Vacuum, shovel or pump all waste material, including absorbent, 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 remove packages from container except for immediate use. Do not store at temperatures below 0°C (32°F). Rough handling may cause breakage, especially at low temperatures. Allow to warm above 10°C (50°F) before use. Do not allow inner bags to become wet during storage. Do not handle inner bag with wet hands or wet gloves. 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
Silica, quartz	0.05 mg/m ³ (TWA) (respirable fraction)	0.1 mg/m ³ (PEL) (respirable dust)	

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

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: For dust exposure, wear chemical protective goggles or a face shield.

RESPIRATORY: For dust exposure 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 or neoprene. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Very faint, aromatic
APPEARANCE:	Light-tan powder
MOLECULAR WEIGHT:	422.88 (bifenthrin)
pH:	8.36 (5% in water at 25°C)
SOLUBILITY IN WATER:	Disperses
SPECIFIC GRAVITY:	0.29 - 0.40 g/mL (18 - 25 lb/cu ft.)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Excessive heat and fire.
STABILITY:	Stable
POLYMERIZATION:	Will not occur
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon monoxide, carbon dioxide, hydrogen chloride, hydrogen fluoride, and sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Expected to be mildly irritating.

SKIN EFFECTS: Expected to be non-irritating

DERMAL LD₅₀: > 2,000 mg/kg (rabbit)

ORAL LD₅₀: 335 mg/kg (rat)

INHALATION LC₅₀: 3.35 mg/l (4 h) (rat)

ACUTE EFFECTS FROM OVEREXPOSURE: This product is expected to have moderate oral and inhalation, and low dermal toxicity. It is expected to be mildly irritating to the eyes and non-irritating to the skin. Signs of toxicity in laboratory animals included nasal discharge, diarrhea, convulsions, tremors and oral 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.

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 crystalline silica for extended periods has caused acute silicosis. IARC has classified crystalline silica, inhaled in the form of quartz or cristobalite from occupational sources, as carcinogenic to humans (Group 1). NTP has classified respirable crystalline silica (quartz, cristobalite and tridymite) as "known to be a human carcinogen". The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that silica quartz is a suspected human carcinogen (A2 - limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals with relevance to humans).

CARCINOGENICITY:

Chemical Name	IARC	NTP	OSHA	Other
Silica, quartz	Listed	Listed	Not listed	(ACGIH) Listed

12. ECOLOGICAL INFORMATION

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

ENVIRONMENTAL DATA: In soil, bifenthrin is stable over a wide pH range and degrades at a slow rate that is governed by soil characteristics. Bifenthrin will also persist in aquatic sediments. 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 LC₅₀ 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 water fowl and upland game birds (LD₅₀ values range from 1,800 mg/kg to >2,150 mg/kg).

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 which held this material should be cleaned, and may be disposed of in a sanitary landfill or by incineration. If the outer container contacts formulated product in any way, it must be triple-rinsed with clean water. Add rinse to the spray tank and dispose of the outer package as described above.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PACKAGING TYPE:

Non-Bulk

ADDITIONAL INFORMATION:

This material is not a hazardous material as defined by US Department of Transportation at 49 CFR Parts 100 through 185.

PACKAGING TYPE:	Bulk
PROPER SHIPPING NAME:	Environmentally hazardous substance, solid, n.o.s.
TECHNICAL NAME(S):	Bifenthrin
PRIMARY HAZARD CLASS / DIVISION:	9
UN/NA NUMBER:	UN 3077
PACKING GROUP:	III
MARINE POLLUTANT:	Bifenthrin
LABEL(S):	9
PLACARD(S):	9
MARKING(S):	3077

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PACKAGING TYPE:	Non-Bulk
PROPER SHIPPING NAME:	Environmentally hazardous substance, solid, n.o.s.
TECHNICAL NAME(S):	Bifenthrin
PRIMARY HAZARD CLASS / DIVISION:	9
UN/NA NUMBER:	UN 3077
PACKING GROUP:	III
MARINE POLLUTANT:	Bifenthrin
LABEL(S):	9
PLACARD(S):	9
MARKING(S):	Environmentally hazardous substance, solid, n.o.s. (bifenthrin), UN 3077 + Marine Pollutant
ADDITIONAL INFORMATION:	EmS Number: F-A, S-F

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

PACKAGING TYPE:	Non-Bulk
PROPER SHIPPING NAME:	Environmentally hazardous substance, solid, n.o.s.
TECHNICAL NAME(S):	Bifenthrin
PRIMARY HAZARD CLASS / DIVISION:	9

CLASSIFICATION CODE:	M7
UN/NA NUMBER:	UN3077
PACKING GROUP:	III
HAZARD IDENTIFICATION NUMBER:	90
MARINE POLLUTANT:	Bifenthrin
LABEL(S):	9
PLACARD(S):	9
MARKING(S):	UN 3077 + Marine Pollutant

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

PACKAGING TYPE:	Non-Bulk
ADDITIONAL INFORMATION:	This material is not a dangerous good when shipped by air.

OTHER INFORMATION:

HARMONIZED SYSTEM
Import to the U.S.A.: 3808.10.2500
Export from the U.S.A.: 3808.10.0000

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):

This product contains the following ingredients subject to Section 313 reporting requirements:
Bifenthrin

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

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

Not listed

FEDERAL INSECTICIDE FUNGICIDE RODENTICIDE ACT

U.S. EPA Signal Word: WARNING

INTERNATIONAL LISTINGS

Australian Hazard Code: 3XE

16. OTHER INFORMATION

REVISION SUMMARY:

This MSDS replaces Revision #9, dated September 07, 2001.

Changes in information are as follows:

New Format, as well as:

Section 3 (Composition / Information on Ingredients)

Section 11 (Toxicological Information)

Section 14 (Transport Information)

Section 15 (Regulatory Information)

Section 16 (Other Information)

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