

# Material Safety Data Sheet

## Brigadier® Insecticide

SDS #: 6369-A

Revision Date: 2012-06-05

Version 1



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

## 1. PRODUCT AND COMPANY IDENTIFICATION

<b>Product name</b>	Brigadier® Insecticide
<b>Formula code</b>	6369-A
<b>Active Ingredient(s)</b>	Bifenthrin, Imidacloprid
<b>Synonyms</b>	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; 1-(6-chloro-3-pyridylmethyl)-N-nitroimidazolidin-2-ylideneamine
<b>Chemical Family</b>	Pyrethroid Pesticide, Neonicotinoid
<b>Recommended use</b>	Insecticide
<b><u>Manufacturer</u></b>	<b><u>Emergency telephone number</u></b>
FMC Corporation Agricultural Products Group 1735 Market Street Philadelphia, PA 19103 General Information: Phone: (215) 299-6000 E-Mail: msdsinfo@fmc.com	Medical Emergencies: (800) 331-3148 (U.S.A. & Canada) +1 (651) 632-6793 (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

<b><u>Appearance</u></b>	White to Tan liquid
<b><u>Physical state</u></b>	liquid
<b><u>Odor</u></b>	No information available.
<b>Flammable properties</b>	Not flammable
<b><u>Potential health effects</u></b>	
<b>Principle Routes of Exposure</b>	Eye contact, Skin contact, Inhalation, Ingestion.
<b>Acute effects</b>	
<b>Eyes</b>	May cause slight irritation.
<b>Skin</b>	Substance may cause slight skin irritation.
<b>Inhalation</b>	May cause irritation of respiratory tract. May cause additional affects as listed under "Ingestion".
<b>Ingestion</b>	Toxic if swallowed. May cause central nervous system depression. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Chronic effects**

Repeated or prolonged exposure may cause central nervous system effects.

**3. Composition/information on ingredients****Hazardous ingredients**

Chemical Name	CAS-No	Weight %
imidacloprid	138261-41-3	11.3
Bifenthrin	82657-04-3	11.3
Glycerin	56-81-5	5-10

**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 treatment advice.
Inhalation	Move person to fresh air. If person is not breathing, call 911 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	Immediately call a poison control center or doctor. 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 induce vomiting or give anything by mouth to an unconscious person.
Notes to physician	This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.

**5. Fire-fighting measures**

<b><u>Flammable properties</u></b>	Not flammable
<b>Flash Point</b>	> 100 °C / > 200 °F (estimated)
<b>Sensitivity to Mechanical Impact</b>	not applicable
<b>Sensitivity to Static Discharge</b>	not applicable
<b>Suitable extinguishing media</b>	Foam. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Water spray or fog.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate downwind.

**NFPA**

<b>Health Hazard</b>	2
<b>Flammability</b>	1
<b>Stability</b>	0
<b>Special Hazards</b>	-

**6. Accidental release measures**

<b>Personal precautions</b>	Isolate and post spill area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.
<b>Environmental precautions</b>	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. Store in original container only.

**8. Exposure controls/personal protection**

Exposure guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Glycerin 56-81-5	TWA: 10 mg/m <sup>3</sup>	TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>		Mexico: TWA 10 mg/m <sup>3</sup>
Chemical Name	British Columbia	Quebec	Ontario TWAEV	Alberta
Glycerin 56-81-5	TWA: 10 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>

Occupational exposure controls

**Engineering measures** Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. 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 or a face-shield.

**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**

**Appearance** White to Tan liquid  
**Color** White to Tan  
**Physical state** liquid

<b>Odor</b>	No information available.
<b>pH</b>	7.0
<b>Melting Point/Range</b>	No information available.
<b>Freezing point</b>	No information available
<b>Boiling Point/Range</b>	not applicable
<b>Flash Point</b>	> 100 °C / > 200 °F (estimated)
<b>Evaporation rate</b>	not applicable
<b>Autoignition Temperature</b>	not applicable
<b>Flammable properties</b>	Not flammable
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Density</b>	9.04 lb/gal
<b>Specific Gravity</b>	No data available
<b>Water solubility</b>	Dispersible in water
<b>Percent volatile</b>	No information available
<b>Partition coefficient:</b>	not applicable
<b>Viscosity</b>	No information available
<b>Oxidizing properties</b>	not applicable

## 10. Stability and reactivity

<b>Stability</b>	Stable under recommended storage conditions.
<b>Conditions to avoid</b>	Excessive heat
<b>Materials to avoid</b>	Strong bases. Strong acids. Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Carbon oxides. Hydrogen chloride. Hydrogen fluoride.
<b>Hazardous polymerization</b>	Hazardous polymerization does not occur.

## 11. Toxicological information

### Acute Toxicity

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.

<b>Eye contact</b>	Slightly or non-irritating (rabbit).
<b>Skin contact</b>	Slightly or non-irritating (rabbit)
<b>LD50 Dermal</b>	> 5,000 mg/kg (rabbit)
<b>LD50 Oral</b>	175 mg/kg (rat)
<b>LC50 Inhalation:</b>	> 2.32 mg/L 4 hr (rat)
<b>Sensitization</b>	Non-sensitizing

### Chronic Toxicity - Other Ingredient(s)

<b>Chronic Toxicity</b>	Repeated or prolonged exposure may cause central nervous system effects.
<b>Carcinogenicity</b>	Imidacloprid, Bifenthrin: Not recognized as carcinogenic by Research Agencies (IARC, NTP, OSHA, ACGIH). Did not show carcinogenic effects in animal experiments.
<b>Mutagenicity</b>	Imidacloprid, Bifenthrin: Not genotoxic.

**Neurological Effects**

Tremors were associated with chronic exposure of laboratory animals to bifenthrin, which may disappear with continued exposure. Imidacloprid: Slight neurobehavioral effects at highest dose.

**Developmental Toxicity**

Imidacloprid, Bifenthrin: Not teratogenic in animal studies.

**Target Organ Effects**

Bifenthrin: A slight increase in male mouse urinary bladder tumors at the highest dose was probably not of toxicological concern. Imidacloprid: Thyroid, liver.

Chemical Name	ACGIH	IARC	NTP	OSHA	NIOSH - Target Organs
Glycerin					respiratory system, skin, eyes, kidneys

**12. Ecological information**

**Ecotoxicity**

Active Ingredient(s)				
Active Ingredient(s)	Duration	Species	Value	Units
imidacloprid (138261-41-3)				
Imidacloprid	96 h LC50	Fish	211	mg/L
	48 h EC50	Daphnia	85	mg/L
	LD50	Bee	0.0039	µg/bee
	LD50 Oral	Bobwhite quail	152	mg/kg

Bifenthrin (82657-04-3)				
Active Ingredient(s)	Duration	Species	Value	Units
Bifenthrin	EC50	Aquatic organisms	0.11 - 0.57	µg/L
Bifenthrin	96 h LC50	Fish	0.1 - 2.0	µg/L
Bifenthrin	LD50 Oral	Bobwhite quail	>1800	mg/kg
Bifenthrin	LD50 Oral	Mallard duck	>2150	mg/kg
Bifenthrin	LD50	Bee	0.1	µg/bee

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Glycerin		LC50 51 - 57 mL/L Oncorhynchus mykiss 96 h		EC50 > >500 mg/L 24 h

**Environmental Fate**

Active Ingredient(s)		
Active Ingredient(s)	Type of Test	Result
imidacloprid (138261-41-3)		
Imidacloprid	Half-life in soil	26-229 days
	Stability in water	30 days

Bifenthrin (82657-04-3)		
Active Ingredient(s)	Type of Test	Result
Bifenthrin	Bioconcentration factor (BCF)	1709
Bifenthrin	Half-life in soil	~85 days
Bifenthrin	log Pow	6.6
Bifenthrin	Mobility in soil	Not expected to reach groundwater
Bifenthrin	Stability in water	Stable to hydrolysis over a wide range of pH values.

Chemical Name	log Pow
Glycerin	-1.76

**Bioaccumulation** Material will likely bioaccumulate in exposed species.

### 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.

### 14. Transport information

#### DOT

<b>Packaging Type</b>	Non-Bulk, Bulk
<b>Proper shipping name</b>	Pyrethroid pesticide, liquid, toxic
<b>Hazard Class</b>	6.1
<b>UN/ID No</b>	UN3352
<b>Packing group</b>	III
<b>Description</b>	UN3352, Pyrethroid pesticide, liquid, toxic (Bifenthrin, Imidacloprid), 6.1 PG III

#### TDG

<b>Proper shipping name</b>	Pyrethroid pesticide, liquid, toxic
<b>Hazard Class</b>	6.1
<b>UN/ID No</b>	UN3352
<b>Packing group</b>	III
<b>Marine pollutant</b>	The "Marine Pollutant" marking is only applicable when shipped by vessel, and is not applicable when shipped only by road or rail in Canada.
<b>Description</b>	UN3352, Pyrethroid pesticide, liquid, toxic (Bifenthrin, Imidacloprid), 6.1 PG III

#### ICAO/IATA

<b>UN/ID No</b>	UN3352
<b>Proper shipping name</b>	Pyrethroid pesticide, liquid, toxic
<b>Hazard Class</b>	6.1
<b>Packing group</b>	III
<b>Marine pollutant</b>	Bifenthrin
<b>Description</b>	UN3352 Pyrethroid pesticide, liquid, toxic (Bifenthrin, Imidacloprid), 6.1, PG III, Marine pollutant

#### IMDG/IMO

<b>Proper shipping name</b>	Pyrethroid pesticide, liquid, toxic
<b>Hazard Class</b>	6.1
<b>UN/ID No</b>	UN3352
<b>Packing group</b>	III
<b>EmS No.</b>	F-A, S-A
<b>Marine pollutant</b>	Bifenthrin
<b>Description</b>	UN3352, Pyrethroid pesticide, liquid, toxic (Bifenthrin, Imidacloprid), 6.1, 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 %
Bifenthrin	82657-04-3	11.3	1.0

**SARA 311/312 Hazard Categories**

<b>Acute Health Hazard</b>	yes
<b>Chronic Health Hazard</b>	yes
<b>Fire Hazard</b>	no
<b>Sudden Release of Pressure Hazard</b>	no
<b>Reactive Hazard</b>	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 Inventory (United States of America)**

Chemical Name	U.S. - TSCA (Toxic Substances Control Act) - Section 8(a) - Chemical-Specific Reporting and Recordkeeping
Glycerin	Partially exempt chemical substance under 40 CFR 710.46(b)(2)

**International Regulations**

**Mexico - Grade**

Moderate risk, Grade 2

Chemical Name	Carcinogen Status	Mexico
Glycerin		Mexico: TWA 10 mg/m <sup>3</sup>

**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**

D1B Toxic materials



**16. Other information**

**Revision Date:** 2012-06-05  
**Reason for revision:** (M)SDS sections updated.

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**End of Material Safety Data Sheet**