

SAFETY DATA SHEET

Brigade® 2EC Insecticide

SDS # : 6196-1-A
Revision date: 2016-05-26
Format: NA
Version 1.02



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name Brigade® 2EC Insecticide

Other means of identification

Product Code(s) 6196-1-A

Synonyms BIFENTHRIN: (2-methyl[1,1'-biphenyl]-3-yl)methyl
3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate (CAS name);
2-methylbiphenyl-3-ylmethyl
(Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate
(IUPAC name)

Active Ingredient(s) Bifenthrin

Alternate Commercial Name Capture 240 EC Insecticide
PCP # 31396

Recommended use of the chemical and restrictions on use

Recommended Use: Insecticide

Restrictions on Use: Use as recommended by the label

Manufacturer Address

FMC Corporation
2929 Walnut Street
Philadelphia, PA 19104
(215) 299-6000 (General Information)
msdsinfo@fmc.com (E-Mail General Information)

Emergency telephone number

Medical Emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - 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

Classification

OSHA Regulatory Status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Skin sensitization	Category 1

Carcinogenicity	Category 2
Specific target organ toxicity (single exposure)	Category 1
Specific target organ toxicity (repeated exposure)	Category 1
Aspiration toxicity	Category 1
Flammable liquids	Category 3


GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements
H301 - Toxic if swallowed
H304 - May be fatal if swallowed and enters airways
H317 - May cause an allergic skin reaction
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure

Physical Hazards
H226 - Flammable liquid and vapor



Precautionary Statements - Prevention

- P201 - Obtain special instructions before use
- P202 - Do not handle until all safety precautions have been read and understood
- P281 - Use personal protective equipment as required
- P264 - Wash face, hands and any exposed skin thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P271 - Use only outdoors or in a well-ventilated area
- P272 - Contaminated work clothing should not be allowed out of the workplace
- P280 - Wear protective gloves
- P260 - Do not breathe dust/fume/gas/mist/vapors/spray
- P210 - Keep away from heat/sparks/open flames/hot surfaces. No smoking
- P233 - Keep container tightly closed
- P240 - Ground/bond container and receiving equipment
- P241 - Use explosion-proof electrical/ventilating/lighting equipment
- P242 - Use only non-sparking tools
- P243 - Take precautionary measures against static discharge

Precautionary Statements - Response

- P308 + P311 - If exposed or concerned: Call a POISON CENTER or doctor
- P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
- P363 - Wash contaminated clothing before reuse
- P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
- P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
- P312 - Call a POISON CENTER or doctor if you feel unwell
- P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor
- P331 - Do NOT induce vomiting
- P330 - Rinse mouth
- P370 + P378 - In case of fire: Use Foam. Carbon dioxide (CO2). Dry chemical. Water spray or fog for extinction

Precautionary Statements - Storage

- P405 - Store locked up
- P403 + P235 - Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

P501 - Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information

Very toxic to aquatic life with long lasting effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS-No	Weight %
Bifenthrin	82657-04-3	25.1
Naphtha (petroleum), heavy aromatic	64742-94-5	50-60
Pseudocumene	95-63-6	<20
Petroleum distillates, solvent dewaxed heavy paraffinic	64742-65-0	<1
Petroleum distillates, solvent dewaxed light paraffinic	64742-56-9	<5
Cumene	98-82-8	<1

Synonyms are provided in Section 1.

4. FIRST AID MEASURES

Eye Contact	Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. 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 victim to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably 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. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not induce vomiting or give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	Central nervous system effects. Allergic skin reactions.
Indication of immediate medical attention and special treatment needed, if necessary	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

Suitable Extinguishing Media	Foam. Carbon dioxide (CO ₂). Dry chemical. Water spray or fog.
Specific Hazards Arising from the Chemical	Combustible liquid
Hazardous Combustion Products	Carbon oxides (COx), Hydrogen chloride, Hydrogen fluoride.
<u>Explosion data</u>	
Sensitivity to Mechanical Impact	Not sensitive.
Sensitivity to Static Discharge	Not sensitive.

Protective equipment and precautions for firefighters As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate downwind.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Isolate and post spill area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

Other For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

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 Sweep up and shovel into suitable containers for disposal. 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.

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.

Incompatible products No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Pseudocumene (95-63-6)	-	-	TWA: 25 ppm TWA: 125 mg/m ³	-
Cumene (98-82-8)	TWA: 50 ppm	TWA: 50 ppm TWA: 245 mg/m ³ S*	IDLH: 900 ppm TWA: 50 ppm TWA: 245 mg/m ³	Mexico: TWA 50 ppm Mexico: TWA 245 mg/m ³ Mexico: STEL 75 ppm Mexico: STEL 365 mg/m ³
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Cumene (98-82-8)	TWA: 25 ppm STEL: 75 ppm	TWA: 50 ppm TWA: 246 mg/m ³	TWA: 50 ppm	TWA: 50 ppm TWA: 246 mg/m ³

Appropriate engineering 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.

Individual protection measures, such as personal protective equipment

Eye/Face Protection For dust, splash, mist or spray exposure, wear chemical protective goggles.

Skin and Body Protection Wear long-sleeved shirt, long pants, socks, and shoes.

Hand Protection Protective gloves

Respiratory Protection	For dust, splash, mist or spray exposures wear elastomeric full-face or half mask respirator with appropriate cartridges and/or filters, which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization).
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.
General information	If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Amber Liquid
Physical State	Liquid
Color	Amber
Odor	Aromatic hydrocarbon
Odor threshold	No information available
pH	No information available
Melting point/freezing point	Not applicable
Boiling Point/Range	No information available
Flash point	44 - 46 °C / 111.2 - 114.8 °F Closed cup
Evaporation Rate	No information available
Flammability (solid, gas)	No information available
Flammability Limit in Air	
Upper flammability limit:	No information available
Lower flammability limit:	No information available
Vapor pressure	No information available
Vapor density	No information available
Density	7.8 - 8.0 lb/gal. (940 - 960 g/L)
Specific gravity	0.94 - 0.96 @ 20 °C
Water solubility	Emulsifies
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Viscosity, kinematic	No information available
Viscosity, dynamic	No information available
Explosive properties	No information available
Oxidizing properties	No information available
Molecular weight	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity	None under normal use conditions
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks
Incompatible materials	No information available.
Hazardous Decomposition Products	Carbon oxides (COx). Hydrogen chloride. Hydrogen fluoride.

11. TOXICOLOGICAL INFORMATION

Product Information

LD50 Oral	262 mg/kg (rat)
LD50 Dermal	> 2,000 mg/kg (rabbit)
LC50 Inhalation	1.86 mg/L 4 hr (rat)
Serious eye damage/eye irritation	Slight irritation (rabbit).
Skin corrosion/irritation	Non-irritating during normal use (rabbit).
Skin Contact	>2000
Sensitization	This product produces skin sensitization (allergic reaction) in laboratory animals, and may produce similar effects in humans.

Information on toxicological effects

Symptoms Large doses of bifenthrin ingested by laboratory animals produced signs of toxicity including convulsions, tremors and bloody nasal discharge.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity	Bifenthrin: Long-term exposure caused neurotoxicity (tremors and impaired gait) in the early exposure in animal studies, but tremors disappeared with continued exposure
Mutagenicity	Bifenthrin: Not genotoxic in animal studies
Carcinogenicity	Bifenthrin: Weak treatment-related response for liver adenocarcinomas and benign bladder tumors (lesion) in male mice
Neurological effects	Bifenthrin: Causes clinical signs of neurotoxicity (tremors, impaired gait, excessive salivation) following acute or subchronic exposure. Tremors disappeared with continued exposure
Reproductive toxicity	Bifenthrin: No toxicity to reproduction in animal studies.
Developmental toxicity	Bifenthrin: Not teratogenic in animal studies.
Teratogenicity	Not teratogenic in animal studies.
STOT - single exposure	Causes damage to organs. See listed target organs below.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure. See listed target organs below.
Target organ effects	Bifenthrin: Central Nervous System (CNS)
Neurological effects	Bifenthrin: Causes clinical signs of neurotoxicity (tremors, impaired gait, excessive salivation) following acute or subchronic exposure. Tremors disappeared with continued exposure
Aspiration hazard	No information available.

Chemical name	ACGIH	IARC	NTP	OSHA
Petroleum distillates, solvent dewaxed heavy paraffinic 64742-65-0	A2	Group 1	Known	
Petroleum distillates, solvent dewaxed light paraffinic 64742-56-9	A2	Group 1	Known	
Cumene 98-82-8		Group 2B	Reasonably Anticipated	X

ACGIH (American Conference of Governmental Industrial Hygienists)
 A2 - Suspected Human Carcinogen
 IARC (International Agency for Research on Cancer)
 Group 1 - Carcinogenic to Humans
 OSHA (Occupational Safety and Health Administration of the US Department of Labor)
 X - Present

12. ECOLOGICAL INFORMATION

Ecotoxicity

Bifenthrin (82657-04-3)				
Active Ingredient(s)	Duration	Species	Value	Units
Bifenthrin	96 h LC50	Fish	0.1	µg/L
	72 h EC50	Algae	0.822	mg/L
	48 h EC50	Crustacea	0.11	µg/L

	21 d NOEC	Fish	0.012	µg/L
	21 d NOEC	Crustacea	0.0013	µg/L

Persistence and degradability Moderately persistent. Does not readily hydrolyze. Not readily biodegradable.

Bioaccumulation Bifenthrin: The substance has a potential for bioconcentration.

Mobility Immobile. Not expected to reach groundwater.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Pesticide wastes are toxic. 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

UN/ID no UN3351
Proper Shipping Name Pyrethroid pesticide, liquid, toxic, flammable
Hazard class 6.1
Subsidiary class 3
Packing Group III
Special Provisions IB3, T7, TP2, TP28
Description UN3351, Pyrethroid pesticide, liquid, toxic, flammable, 6.1 (3), PG III

Emergency Response Guide Number 131

TDG

UN/ID no UN3351
Proper Shipping Name Pyrethroid pesticide, liquid, toxic, flammable
Hazard class 6.1
Subsidiary class 3
Packing Group III
Marine Pollutant Bifenthrin.
Description UN3351, Pyrethroid pesticide, liquid, toxic, flammable (Bifenthrin, aromatic hydrocarbons), 6.1 (3), PG III

UN/ID no UN3351
Hazard class 6.1
Subsidiary class 3
Packing Group III
Description UN3351, PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE* SOLUTION (Bifenthrin, 1,2,4 Trimethylbenzenes), 6.1 (3), PG III

ICAO

UN/ID no UN3351
Hazard class 6.1
Subsidiary Hazard Class 3
Packing Group III
Description UN3351, PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE* SOLUTION, 6.1 (3), PG III

ICAO/IATA

UN/ID no UN3351
Proper Shipping Name Pyrethroid pesticide, liquid, toxic, flammable

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Hazard class 6.1
Subsidiary Hazard Class 3
Packing Group III
Special Provisions A3, A4
Description UN3351, Pyrethroid pesticide, liquid, toxic, flammable (Bifenthrin, aromatic hydrocarbons), 6.1 (3), PG III
Limited quantity 2 L

IMDG/IMO

UN/ID no UN3351
Proper Shipping Name Pyrethroid pesticide, liquid, toxic, flammable
Hazard class 6.1
Subsidiary Hazard Class 3
Packing Group III
EmS No. F-E, S-D
Marine Pollutant Bifenthrin
Description UN3351, Pyrethroid pesticide, liquid, toxic, flammable (Bifenthrin, aromatic hydrocarbons), 6.1 (3), PG III (42°C c.c.)

UN/ID no UN3351
Hazard class 6.1
Packing Group III
Classification code TF2
Description UN3351, PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE* (Bifenthrin, 1,2,4 Trimethylbenzenes), 6.1 (3), PG III
ADR/RID-Labels 3

ADR/RID

UN/ID no UN3351
Hazard class 6.1
Packing Group III
Classification code TF2
Tunnel restriction code (D/E)
Special Provisions 61, 274
Description UN3351, PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE* (Bifenthrin, 1,2,4 Trimethylbenzenes), 6.1 (3), PG III, (D/E)

ADN

Hazard class 6.1
Packing Group III
Classification code TF2
Special Provisions 274, 61, 802
Hazard Labels 3
Limited quantity LQ7
Ventilation VE01, VE02

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	82657-04-3	25.1	1.0
Pseudocumene - 95-63-6	95-63-6	<20	1.0
Cumene - 98-82-8	98-82-8	<1	1.0

SARA 311/312 Hazard Categories

Acute health hazard Yes
Chronic health hazard Yes
Fire hazard Yes
Sudden release of pressure hazard No

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Reactive Hazard

No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Xylenes 1330-20-7	100 lb			X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
n-Butanol 71-36-3	5000 lb 2270 kg	
Xylenes 1330-20-7	100 lb 45.4 kg	
Cumene 98-82-8	5000 lb 2270 kg	

FIFRA Information

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Warning

May be fatal if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation.
This pesticide is extremely toxic to fish and aquatic invertebrates.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical name	California Prop. 65
Cumene - 98-82-8	Carcinogen

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Bifenthrin 82657-04-3	X		
Pseudocumene 95-63-6	X	X	X
Petroleum distillates, solvent dewaxed light paraffinic 64742-56-9		X	
Cumene 98-82-8	X	X	X

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
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Bifenthrin 82657-04-3				X	X	X		
Naphtha (petroleum), heavy aromatic 64742-94-5	X	X	X	X	X	X	X	X
Pseudocumene 95-63-6	X	X	X	X	X	X	X	X
Petroleum distillates, solvent dewaxed heavy paraffinic 64742-65-0	X	X	X		X	X	X	X
Petroleum distillates, solvent dewaxed light paraffinic 64742-56-9	X	X	X		X	X	X	X
Cumene 98-82-8	X	X	X	X	X	X	X	X

Mexico - Grade Serious risk, Grade 3

Chemical name	Carcinogen Status	Mexico
Cumene		Mexico: TWA 50 ppm Mexico: TWA 245 mg/m ³ Mexico: STEL 75 ppm Mexico: STEL 365 mg/m ³

Chemical name	Mexico - Pollutant Release and Transfer Register - Reporting Emissions for Fabrication, Process or Use -Threshold Quantities	Pollutant Release and Transfer Register - Reporting Emissions - Threshold Quantities
Bifenthrin	100 2500 kg/yr	100 kg/yr
Xylenes	1000 5000 kg/yr	1000 kg/yr
Cumene	1000 5000 kg/yr	1000 kg/yr

WHMIS Hazard Class B3 - Combustible liquid
 D1B - Toxic materials
 D2A - Very toxic materials



16. OTHER INFORMATION

NFPA	Health Hazards 2	Flammability 2	Instability 0	Special Hazards -
HMIS	Health Hazards 2*	Flammability 2	Physical hazard 0	Personal Protection X

*Indicates a chronic health hazard.

Revision date: 2016-05-26
 Reason for revision: (M)SDS sections updated

Disclaimer

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applicable where such product is used in combination with any other materials or in any process. Use of this product is regulated by the U.S. Environmental Protection Agency (EPA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Further, since the conditions and methods of use are beyond the control of FMC Corporation, FMC corporation expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.

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End of Safety Data Sheet