

**SAFETY DATA SHEET**  
**BRIGADE® 25 EC INSECTICIDE**

**SDS # :** 6275-A  
**Revision date:** 2016-05-26  
**Format:** NA  
**Version** 1.02



**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

**Product Name** BRIGADE® 25 EC INSECTICIDE

**Other means of identification**

**Product Code(s)** 6275-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

**Chemical Family** Pyrethroid Pesticide

**Alternate Commercial Name** Talstar® 2.5 EC

**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 4
Acute toxicity - Dermal	Category 4

Serious eye damage/eye irritation	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

H302 - Harmful if swallowed  
H304 - May be fatal if swallowed and enters airways  
H312 - Harmful in contact with skin  
H318 - Causes serious eye damage  
H351 - Suspected of causing cancer  
H370 - Causes damage to organs  
H372 - Causes damage to organs through prolonged or repeated exposure



#### 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  
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

P321 - Specific treatment (see supplemental first aid instructions on this label)  
P308 + P311 - If exposed or concerned: Call a POISON CENTER or doctor  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
P310 - Immediately call a POISON CENTER or doctor  
P312 - Call a POISON CENTER or doctor if you feel unwell  
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  
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 (CO<sub>2</sub>). 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 Family** Pyrethroid Pesticide.

Chemical name	CAS-No	Weight %
Bifenthrin	82657-04-3	2.8
Naphtha (petroleum), heavy aromatic	64742-94-5	85-95
Pseudocumene	95-63-6	20-30
Cumene	98-82-8	<1

Synonyms are provided in Section 1.

**4. FIRST AID MEASURES**

<b>Eye Contact</b>	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.
<b>Skin Contact</b>	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.
<b>Inhalation</b>	Move 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.
<b>Ingestion</b>	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.
<b>Most important symptoms and effects, both acute and delayed</b>	Central nervous system effects.
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	Contains petroleum distillate. Vomiting may cause aspiration pneumonia. 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>Suitable Extinguishing Media</b>	Foam. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Water spray or fog.
<b>Specific Hazards Arising from the Chemical</b>	
<b>Explosion data</b>	
<b>Sensitivity to Mechanical Impact</b>	Not sensitive.
<b>Sensitivity to Static Discharge</b>	Yes.
<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.

**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>Other</b>	For further clean-up instructions, call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
<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.
<b>Methods for Containment</b>	Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
<b>Methods for cleaning up</b>	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

<b>Handling</b>	Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.
<b>Storage</b>	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.
<b>Incompatible products</b>	None known

## 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 <sup>3</sup>	-
Cumene (98-82-8)	TWA: 50 ppm	TWA: 50 ppm TWA: 245 mg/m <sup>3</sup> S*	IDLH: 900 ppm TWA: 50 ppm TWA: 245 mg/m <sup>3</sup>	Mexico: TWA 50 ppm Mexico: TWA 245 mg/m <sup>3</sup> Mexico: STEL 75 ppm Mexico: STEL 365 mg/m <sup>3</sup>
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 <sup>3</sup>	TWA: 50 ppm	TWA: 50 ppm TWA: 246 mg/m <sup>3</sup>

### Appropriate engineering controls

<b>Engineering measures</b>	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.
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### Individual protection measures, such as personal protective equipment

<b>Eye/Face Protection</b>	For dust, splash, mist or spray exposure, wear chemical protective goggles.
<b>Skin and Body Protection</b>	Wear long-sleeved shirt, long pants, socks, and shoes.
<b>Hand Protection</b>	Protective gloves
<b>Respiratory Protection</b>	For dust, splash, mist or spray exposures wear a filtering mask.
<b>Hygiene measures</b>	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	Light brown
Physical State	Liquid
Color	No information available
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 °F Tag 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	7.33 lb/gal
Specific gravity	0.8876 @ 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	Not applicable
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	None known.
Hazardous Decomposition Products	Carbon oxides (COx). Hydrogen chloride. Hydrogen fluoride.

## 11. TOXICOLOGICAL INFORMATION

Data presented is for a similar formulation.

### Product Information

LD50 Oral	1,358 1358 mg/kg (rat)
LD50 Dermal	2,000 2000 mg/kg (rabbit)
LC50 Inhalation	5.5 mg/L 4 hr (rat)
Serious eye damage/eye irritation	Severely irritating.
Skin corrosion/irritation	Slightly or non-irritating (rabbit).
Skin Contact	>2000

**Sensitization** Non-sensitizing

### 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 laboratory 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.

**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.

**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** Potential for aspiration if swallowed. May be fatal if swallowed and enters airways.

Chemical name	ACGIH	IARC	NTP	OSHA
Cumene 98-82-8		Group 2B	Reasonably Anticipated	X

ACGIH (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 3 - Not classifiable as to its carcinogenicity to humans

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

4.896% of the mixture consists of component(s) of unknown hazards to the aquatic environment

<b>Bifenthrin (82657-04-3)</b>				
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** Bifenthrin: Moderately persistent. Does not readily hydrolyze. Not readily biodegradable.

**Bioaccumulation** Bifenthrin: The substance has a potential for bioconcentration.

**Mobility** Bifenthrin: Immobile. Not expected to reach groundwater.

### 13. DISPOSAL CONSIDERATIONS

<b>Waste disposal methods</b>	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.
<b>Contaminated Packaging</b>	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

<b>DOT</b>	Not regulated for transportation if shipped in Non Bulk packaging. The classification below pertains to the shipment in Bulk packaging. Note: According to 49 CFR §173.150(f)(1), this material was reclassified as a combustible liquid. This provision does not apply to transportation by vessel or aircraft, except where other means of transportation is impractical.
<b>UN/ID no</b>	NA1993
<b>Proper Shipping Name</b>	Combustible liquid, n.o.s
<b>Hazard class</b>	Combustible
<b>Packing Group</b>	III
<b>TDG</b>	Classification below is only applicable when shipped by vessel and is not applicable when shipped by road or rail only.
<b>UN/ID no</b>	UN1993
<b>Proper Shipping Name</b>	Flammable liquid, n.o.s
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>Marine Pollutant</b>	Bifenthrin.
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (aromatic hydrocarbons, bifenthrin), 3, III, Marine Pollutant
<b>ICAO/IATA</b>	
<b>UN/ID no</b>	UN1993
<b>Proper Shipping Name</b>	Flammable liquid, n.o.s
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (aromatic hydrocarbons, bifenthrin), 3, III, Marine Pollutant
<b>IMDG/IMO</b>	
<b>UN/ID no</b>	UN1993
<b>Proper Shipping Name</b>	Flammable liquid, n.o.s
<b>Hazard class</b>	3
<b>Packing Group</b>	III
<b>EmS No.</b>	F-E, S-E
<b>Marine Pollutant</b>	Bifenthrin
<b>Description</b>	UN1993, Flammable liquid, n.o.s. (aromatic hydrocarbons, bifenthrin), 3, III (44°C t.c.c.), 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	82657-04-3	2.8	1.0

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Pseudocumene - 95-63-6	95-63-6	20-30	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
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
Naphthalene 91-20-3	100 lb	X	X	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
Xylenes 1330-20-7	100 lb 45.4 kg	
Naphthalene 91-20-3	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**

*Causes severe eye irritation. Causes skin irritation. Harmful if swallowed, inhaled or absorbed through the skin.  
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**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Bifenthrin 82657-04-3	X		
Pseudocumene 95-63-6	X	X	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)
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
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 <sup>3</sup> Mexico: STEL 75 ppm Mexico: STEL 365 mg/m <sup>3</sup>

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
Xylenes	1000 5000 kg/yr	1000 kg/yr
Bifenthrin	100 2500 kg/yr	100 kg/yr
Cumene	1000 5000 kg/yr	1000 kg/yr

**WHMIS Hazard Class**

B3 - Combustible liquid  
D2A - Very toxic materials  
D2B - Toxic materials

**16. OTHER INFORMATION**

NFPA	Health Hazards 3	Flammability 2	Instability 0	Special Hazards -
HMIS	Health Hazards 3*	Flammability 2	Physical hazard 0	Personal Protection X

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

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**Prepared By:**

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**End of Safety Data Sheet**