

# SAFETY DATA SHEET

## BULL

SDS #: FO002177-4-A  
Revision date: 2018-12-07  
Format: NA  
Version 1.02



### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product Identifier

Product Name BULL

#### Other means of identification

Product Code(s) FO002177-4-A

Legacy Product Code 15F/1526

Synonyms GAMMA-CYHALOTHRIN:  
(S)-cyano(3-phenoxyphenyl)methyl(1R,3R)-3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]-2,2-dimethylcyclopropanecarboxylate (CAS name);  
(S)-α-cyano-3-phenoxybenzyl(1R,3R)-3-[(Z)-2-chloro-3,3,3-trifluoropropenyl]-2,2-dimethylcyclopropanecarboxylate (IUPAC name)

Active Ingredient(s) Gamma-cyhalothrin

Formula  $C_{23}H_{19}ClF_3NO_3$  (Gamma-cyhalothrin)

Chemical Family Pyrethroid Pesticide

#### Recommended use of the chemical and restrictions on use

Recommended Use: Insecticide

Restrictions on Use: Use as recommended by the label.

#### Supplier Address

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

#### Emergency telephone number

For leak, fire, spill or accident emergencies, call:  
1 800 / 424-9300 (CHEMTREC - U.S.A.)  
1 703 / 741-5970 (CHEMTREC - International)  
1 703 / 527-3887 (CHEMTREC - Alternate)

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

### 2. HAZARDS IDENTIFICATION

#### Classification

OSHA Regulatory Status

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

Acute toxicity - Inhalation (Dusts/Mists)	Category 4
Serious eye damage/eye irritation	Category 2
Skin sensitization	Category 1B

#### GHS Label elements, including precautionary statements

#### EMERGENCY OVERVIEW

##### Warning

##### Hazard Statements

H317 - May cause an allergic skin reaction

H320 - Causes eye irritation

H332 - Harmful if inhaled

H410 - Very toxic to aquatic life with long lasting effects



##### Precautionary Statements - Prevention

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray

P271 - Use only outdoors or in a well-ventilated area

P264 - Wash face, hands and any exposed skin thoroughly after handling

P272 - Contaminated work clothing should not be allowed out of the workplace

P280 - Wear protective gloves/protective clothing/eye protection/face protection

##### Precautionary Statements - Response

P308 + P313 - If exposed or concerned: Get medical advice/attention

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337 + P313 - If eye irritation persists: Get medical advice/ attention

P302 + P352 - IF ON SKIN: Wash with plenty of water and soap

P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention

P363 - Wash contaminated clothing before reuse

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

##### Precautionary Statements - Storage

P405 - Store locked up

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

##### Precautionary Statements - Disposal

P501 - Dispose of contents/container according to label directions

##### 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 %
Gamma-cyhalothrin	76703-62-3	5.9
Naphtha (petroleum), heavy aromatic	64742-94-5	1-5
Ethylendiamine	107-15-3	<1
Microcrystalline cellulose	9004-34-6	<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>	Remove contaminated clothing and shoes. Do not start with flushing with water, but wipe off with dry cloth or using talcum powder, followed by washing with water and soap. Thereafter apply vitamin E cream or fatty skin care oil or cream. Call a poison control center or doctor for further treatment advice.
<b>Inhalation</b>	Move to fresh air. Remove from exposure, lie down. Call a poison control center or doctor for further treatment advice. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
<b>Ingestion</b>	Call a poison control center or doctor immediately for treatment advice. 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 give anything by mouth to an unconscious person.
<b>Most important symptoms and effects, both acute and delayed</b>	Gamma-cyhalothrin can cause feelings of burning, tingling or numbness in exposed areas (paraesthesia).
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	Induced vomiting as first aid for this substance may result in increased risk of chemical pneumonia or pulmonary edema caused by aspiration of the hydrocarbon solvent. Vomiting should be induced only under professional supervision.

#### 5. FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media</b>	Dry chemical, Carbon dioxide (CO <sub>2</sub> ), Water spray, Foam. Avoid heavy hose streams.
<b>Specific Hazards Arising from the Chemical</b>	None known
<b>Hazardous Combustion Products</b>	The essential breakdown products are volatile, toxic, irritant and inflammable compounds such as. Hydrogen chloride, Hydrogen fluoride, Hydrogen cyanide, Carbon monoxide, Carbon dioxide (CO <sub>2</sub> ), Nitrogen oxides (NO <sub>x</sub> ), various chlorinated and fluorinated organic compounds.
<b>Explosion data</b>	
<b>Sensitivity to Mechanical Impact</b>	No information available.
<b>Sensitivity to Static Discharge</b>	No information available.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus and full protective gear. Approach fire from upwind to avoid hazardous vapours and toxic decomposition products.

#### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Isolate and post spill area. Remove all sources of ignition. 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>	Contain the spill to prevent any further contamination of surface, soil or water. Keep material out of lakes, streams, ponds, and sewer drains. Local authorities should be advised if significant spillages cannot be contained. Keep people and animals away from and upwind of spill/leak.
<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 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>	Handle in accordance with good industrial hygiene and safety practice. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Remove and wash contaminated clothing before re-use. Wash thoroughly after handling. Refer to Section 8.
<b>Storage</b>	Keep container tightly closed in a dry and well-ventilated place. Keep out of reach of children and animals. Keep away from food, drink and animal feedingstuffs. Keep/store only in original container. Keep in properly labeled containers. Protect against extremes of heat and cold.
<b>Incompatible products</b>	Oxidizing agents

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Ethylendiamine (107-15-3)	TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	IDLH: 1000 ppm TWA: 10 ppm TWA: 25 mg/m <sup>3</sup>	Mexico: TWA 10 ppm Mexico: TWA 25 mg/m <sup>3</sup> Mexico: STEL 3 mg/m <sup>3</sup>
Microcrystalline cellulose (9004-34-6)	TWA: 10 mg/m <sup>3</sup>	TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	Mexico: TWA 10 mg/m <sup>3</sup> Mexico: STEL 20 mg/m <sup>3</sup>
Chemical name	British Columbia	Quebec	Ontario TWAEV	Alberta
Ethylendiamine (107-15-3)	TWA: 10 ppm Skin	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup> Skin	TWA: 10 ppm  Skin	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup> Skin
Microcrystalline cellulose (9004-34-6)	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> TWA: 5 mg/m <sup>3</sup>

### Appropriate engineering controls

<b>Engineering measures</b>	Apply technical measures to comply with the occupational exposure limits. 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 suitable protective clothing. Protective shoes or boots.
<b>Hand Protection</b>	Use protective gloves made of chemical materials such as nitrile or neoprene. Wash the outside of gloves with soap and water before reuse. Check regularly for leaks.

<b>Respiratory Protection</b>	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
<b>Hygiene measures</b>	Clean water should be available for washing in case of eye or skin contamination. Remove and wash contaminated clothing before re-use. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Launder work clothing separately from regular household laundry.
<b>General information</b>	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

<b>Appearance</b>	Beige Liquid
<b>Physical State</b>	Suspension
<b>Color</b>	Beige
<b>Odor</b>	Slight
<b>Odor threshold</b>	No information available
<b>pH</b>	5.71 @ 23°C (1% solution in water)
<b>Melting point/freezing point</b>	< 0 °C
<b>Boiling Point/Range</b>	Not applicable (Decomposes)
<b>Flash point</b>	> 100 °C / > 200 °F Seta Closed Cup
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid, gas)</b>	Not applicable (Product is a liquid)
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No information available
<b>Lower flammability limit:</b>	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Relative density</b>	1.019 g/mL @ 20°C
<b>Specific gravity</b>	No information available
<b>Water solubility</b>	Dispersible in water
<b>Solubility in other solvents</b>	No information available
<b>Partition coefficient</b>	No information available
<b>Autoignition temperature</b>	> 400 °C
<b>Decomposition temperature</b>	No information available
<b>Viscosity, kinematic</b>	High viscosity
<b>Viscosity, dynamic</b>	High viscosity
<b>Explosive properties</b>	Not explosive
<b>Oxidizing properties</b>	Non-oxidizing
<b>Molecular weight</b>	No information available
<b>Bulk density</b>	No information available

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	None under normal use conditions
<b>Chemical Stability</b>	Decomposes on heating.
<b>Possibility of Hazardous Reactions</b>	None under normal processing.
<b>Hazardous polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Heating can release hazardous gases
<b>Incompatible materials</b>	Oxidizing agents.
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Hydrogen chloride, Hydrogen fluoride, Nitrogen oxides (NOx), Hydrogen cyanide, various chlorinated and fluorinated organic compounds.

## 11. TOXICOLOGICAL INFORMATION

### Product Information

LD50 Oral : 3257 mg/kg (rat)  
 LD50 Dermal : > 5000 (rat) mg/kg  
 LC50 Inhalation : > 2.31 mg/L 4 hr (rat)

Serious eye damage/eye irritation Moderately irritating to eyes.  
 Skin corrosion/irritation Slightly irritating.  
 Sensitization May cause sensitization by skin contact

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Naphtha (petroleum), heavy aromatic (64742-94-5)	> 5,000 mg/kg ( Rat )	> 2000 mg/kg ( Rabbit )	>5.28 mg/L ( Rat ) 4 h
Ethylendiamine (107-15-3)	= 637 mg/kg ( Rat )	= 560 mg/kg ( Rabbit )	4916 - 9832 mg/m <sup>3</sup> ( Rat ) 8 h
Microcrystalline cellulose (9004-34-6)	> 5 g/kg ( Rat )	> 2 g/kg ( Rabbit ) > 2000 mg/kg ( Rabbit )	> 5800 mg/m <sup>3</sup> ( Rat ) 4 h

### Information on toxicological effects

Symptoms Gamma-cyhalothrin can cause feelings of burning, tingling or numbness in exposed areas (paraesthesia).

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

Mutagenicity Gamma-cyhalothrin: Not mutagenic

Carcinogenicity Tests on similar substances have shown that gamma-cyhalothrin is unlikely to be carcinogenic.

Neurological effects Gamma-cyhalothrin can cause feelings of burning, tingling or numbness in exposed areas (paraesthesia).

Reproductive toxicity Gamma-cyhalothrin: No toxicity to reproduction in animal studies.

STOT - single exposure None known.  
 STOT - repeated exposure Central Nervous System.

Neurological effects Gamma-cyhalothrin can cause feelings of burning, tingling or numbness in exposed areas (paraesthesia).

Aspiration hazard No information available.

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Ethylendiamine 107-15-3	72 h EC50: = 645 mg/L (Pseudokirchneriella subcapitata) 96 h EC50: = 151 mg/L (Pseudokirchneriella subcapitata)	96 h LC50: 98.6 - 131.6 mg/L (Pimephales promelas) static 96 h LC50: 191 - 254 mg/L (Pimephales promelas) flow-through 96 h LC50: = 115.7 mg/L (Pimephales promelas) semi-static 96 h LC50:	48 h EC50: = 17 mg/L (Daphnia magna)

		180 - 560 mg/L (Poecilia reticulata) semi-static	
Dipropylene glycol 25265-71-8		24 h LC50: > 5000 mg/L (Carassius auratus) static	

<b>Persistence and degradability</b>	Gamma-cyhalothrin. Not readily biodegradable.
<b>Bioaccumulation</b>	Gamma-cyhalothrin: The substance has a potential for bioconcentration.
<b>Mobility</b>	Gamma-cyhalothrin: Is not likely mobile in the environment.

### 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. Proper personal protective equipment, as described in Sections 7 and 8, must be worn while handling materials for waste disposal.
<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
<b>TDG</b>	
UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
Marine Pollutant	Gamma-cyhalothrin.
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (gamma-cyhalothrin), 9, III, Marine pollutant
<b>ICAO/IATA</b>	
UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (gamma-cyhalothrin), 9, III, Marine pollutant
<b>IMDG/IMO</b>	
UN/ID no	UN3082
Proper Shipping Name	Environmentally hazardous substance, liquid, n.o.s.
Hazard class	9
Packing Group	III
Marine Pollutant	Gamma-cyhalothrin
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (gamma-cyhalothrin), 9, 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 does not contain any

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chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**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 contains the following substances which are regulated 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
Aluminum Sulfate 10043-01-3	5000 lb			X
Ethylendiamine 107-15-3	5000 lb			X
Sodium Hydroxide 1310-73-2	1000 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
Aluminum Sulfate 10043-01-3	5000 lb 2270 kg	
Methylene bisphenyl isocyanate (MDI) 101-68-8	5000 lb 2270 kg	
Ethylendiamine 107-15-3	5000 lb 2270 kg	5000 lb
Sodium Hydroxide 1310-73-2	1000 lb 454 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:*

**CAUTION**

*Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes, skin, or clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals.*

*This pesticide is extremely toxic to fish and aquatic organisms and toxic to wildlife.*

**US State Regulations****California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania
Ethylendiamine 107-15-3	X	X	X
Microcrystalline cellulose	X	X	X



9004-34-6			
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**International Inventories**

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Gamma-cyhalothrin 76703-62-3			X					
Naphtha (petroleum), heavy aromatic 64742-94-5	X	X	X		X	X	X	X
Ethylendiamine 107-15-3	X	X	X	X	X	X	X	X
Microcrystalline cellulose 9004-34-6	X	X	X	X	X	X	X	X

**Mexico - Grade**

Serious risk, Grade 3

Chemical name	Carcinogen Status	Mexico
Ethylendiamine		Mexico: TWA 10 ppm Mexico: TWA 25 mg/m <sup>3</sup> Mexico: STEL 3 mg/m <sup>3</sup>
Microcrystalline cellulose		Mexico: TWA 10 mg/m <sup>3</sup> Mexico: STEL 20 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
Methylene bisphenyl isocyanate (MDI)	100 5000 kg/yr	100 kg/yr

**CANADA****WHMIS Statement**

This product has been classified in accordance with the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

**WHMIS Hazard Class**

D1B - Toxic materials

**16. OTHER INFORMATION**

NFPA	Health Hazards 2	Flammability 1	Instability 0	Special Hazards -
HMIS	Health Hazards 2*	Flammability 1	Physical hazard 0	Personal Protection -

\*Indicates a chronic health hazard.

**NFPA/HMIS Ratings Legend**

Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

**Revision date:**

2018-12-07

**Reason for revision:**

SDS sections updated

**Disclaimer**

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**End of Safety Data Sheet**