

SAFETY DATA SHEET

Brigada Geo

This safety data sheet complies with the requirements of:
Regulation (EC) No. 453/2010 and Regulation (EC) No. 1272/2008



SDS # : 1686-8-A

Revision date: 2019-06-24

Format: EU

Version 1

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Code(s)	1686-8-A
Product Name	Brigada Geo
Synonyms	BIFENTHRIN: (2-methyl[1,1'-biphenyl]-3-yl)methyl (1R,3R)-rel-3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propenyl]-2,2-dimethylcyclopropanecarboxylate (CAS name); 2-methyl-3-phenylbenzyl (1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate (IUPAC name)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use:	Insecticide, Miticide
Restrictions on Use:	Use as recommended by the label.

1.3. Details of the supplier of the safety data sheet

<u>Manufacturer</u>	FMC Agricultural Solutions A/S Thyborønvej 78DK-7673 Harbøre Denmark +45 9690 9690 SDS.Ronland@fmc.com
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For further information, please contact:

Contact point	E-Mail: msdsinfo@fmc.com Phone: +1 215-299-6000 (General Information)
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1.4. Emergency telephone number

Emergency telephone	Medical emergencies: Austria: +43 1 406 43 43 Belgium: +32 70 245 245 Bulgaria: +359 2 9154 409 Cyprus: 1401 Czech Republic: +420 224 919 293, +420 224 915 402 Denmark: +45 82 12 12 12 France: +33 (0) 1 45 42 59 59 Finland: +358 9 471 977 Greece: 30 210 77 93 777 Hungary: +36 80 20 11 99 Ireland (Republic): +352 1 809 2166 Italy: +39 02 6610 1029 Lithuania: +370 523 62052, +370 687 53378 Luxembourg: +352 8002 5500 Netherlands: +31 30 274 88 88 Norway: +47 22 591300
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Poland: +48 22 619 66 54, +48 22 619 08 97
Portugal: 808 250 143 (in Portugal only), +351 21 330 3284
Romania: +40 21318 3606
Slovakia: +421 2 54 77 4 166
Slovenia: +386 41 650 500
Spain: +34 91 562 04 20
Sweden: +46 08-331231112
Switzerland: 145
United Kingdom: 0870 600 6266 (in the UK only)
U.S.A. & Canada: +1 800 / 331-3148
All other countries: +1 651 / 632-6793 (Collect)

Section 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture *Regulation (EC) No 1272/2008*

Carcinogenicity	Category 1A (H350)
Specific target organ toxicity (single exposure)	Category 1 (H370)
Specific target organ toxicity (repeated exposure)	Category 1 (H372)
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

2.2. Label elements

Hazard pictograms



Signal Word

Danger

Hazard Statements

H350 - May cause cancer
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements

P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P307 + P311 - IF exposed: Call a POISON CENTER or doctor/physician
P405 - Store locked up
P501: Dispose of contents/container as hazardous waste.

2.3. Other hazards

No information available.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Chemical name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
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Crystalline silica, quartz	238-878-4	14808-60-7	>80	Not classified	Pre-registered
Bifenthrin	-	82657-04-3	0.2	Acute Tox. 2 (H300) Acute Tox. 3 (H331) Skin Sens. 1 (H317) Carc. 2 (H351) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	No data available
Petroleum distillates, solvent dewaxed light paraffinic	Present	64742-56-9	0.1 - 1	Carc. 1B (H350)	No data available

Section 4: FIRST AID MEASURES

4.1. Description of 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 further treatment advice.
Inhalation	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.
Ingestion	Call a poison control center or doctor immediately for treatment advice. 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 give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed	Central nervous system effects.
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4.3. Indication of any immediate medical attention and special treatment needed

Indication of immediate medical attention and special treatment needed, if necessary	Treat symptomatically. This product is a pyrethroid. If large amounts have been ingested, milk, cream, and other digestible fats and oils may increase absorption and so should be avoided.
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Section 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
Use CO₂, dry chemical, or foam.

Unsuitable extinguishing media
No information available

5.2. Special hazards arising from the substance or mixture

Powdered material may form explosive dust-air mixtures.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate upwind.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal Precautions

Isolate and post spill area. Remove all sources of ignition. Ventilate the area. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

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

For emergency responders

Use personal protection recommended in Section 8.

6.2. Environmental precautions

Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains. Keep out of waterways.

6.3. Methods and material for containment and cleaning up

Methods for Containment

Use a wet sweeping compound or water to prevent dust formation.

Methods for cleaning up

Sweep up and shovel into suitable containers for disposal. 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.

6.4. Reference to other sections

See section 8 for more information. See section 13 for more information.

Section 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Handling

Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

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.

7.2. Conditions for safe storage, including any incompatibilities

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.

7.3. Specific end use(s)

Specific Use(s)

The product is a registered pesticide which may only be used for the applications it is registered for, in accordance with a label approved by the regulatory authorities.

Risk Management Methods (RMM)

The information required is contained in this Safety Data Sheet.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical name	European Union	The United Kingdom	France	Spain	Germany
Crystalline silica, quartz	-	-	TWA 0.1 mg/m ³	TWA 0.05 mg/m ³	-

14808-60-7					
Chemical name	Italy	Portugal	The Netherlands	Finland	Denmark
Crystalline silica, quartz 14808-60-7	-	TWA 0.025 mg/m ³ C(A2)	TWA 0.075 mg/m ³	TWA 0.05 mg/m ³	TWA 0.3 mg/m ³ TWA 0.1 mg/m ³
Chemical name	Austria	Switzerland	Poland	Norway	Ireland
Crystalline silica, quartz 14808-60-7	TWA 0.15 mg/m ³	SS-C** TWA 0.15 mg/m ³ C1	TWA 0.1 mg/m ³	TWA 0.3 mg/m ³ TWA 0.1 mg/m ³ K** STEL 0.9 mg/m ³ STEL 0.3 mg/m ³	TWA 0.1 mg/m ³

Derived No Effect Level (DNEL) Not Established.

Predicted No Effect Concentration (PNEC) Not Established.

8.2. Exposure controls

Engineering measures 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.

Personal protective equipment

Eye/Face Protection If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.

Hand Protection 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.

Skin and Body Protection Minimize skin contamination by following good industrial hygiene practices.

Respiratory Protection If exposure limits are exceeded or irritation is experienced, 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.

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

Environmental exposure controls Avoid release to the environment. Avoid dust formation.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Solid
Appearance	Granules
Odor	Slight Musty
Color	Cream to tan
Odor threshold	No information available
pH	6.8-7.1
Melting point/freezing point	No information available
Boiling Point/Range	No information available
Flash point	No information available
Evaporation Rate	No information available
Flammability (solid, gas)	
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
Specific gravity	No information available
Water solubility	No information available
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

9.2. Other information

Softening point	No information available
Molecular weight	No information available
VOC content (%)	No information available
Relative density	1.39
Bulk density	50-53
K _{st}	No information available

Section 10: STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use conditions

10.2. Chemical stability

Stable under recommended storage conditions.

Explosion data

Sensitivity to Mechanical Impact No information available.

Sensitivity to Static Discharge No information available.

10.3. Possibility of hazardous reactions**Hazardous polymerization**

Hazardous polymerization does not occur.

Hazardous reactions

None under normal processing.

10.4. Conditions to avoid

Excessive heat. Keep away from open flames, hot surfaces and sources of ignition.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

Carbon oxides (CO_x), Hydrogen chloride, Hydrogen fluoride.

Section 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects**Acute toxicity****Product Information**

Product does not present an acute toxicity hazard based on known or supplied information.

LD50 Oral	> 5000 mg/kg (rat)
LD50 Dermal	> 2000 mg/kg (rabbit)
LC50 Inhalation	No information available

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bifenthrin	55 mg/kg (rat)	> 2000 mg/kg (rat)	0.8 mg/L (female, rat) 4 h
Petroleum distillates, solvent dewaxed light paraffinic	> 5000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 5399 mg/m ³ (Rat) 4 h

Skin corrosion/irritation Non-irritating.
Serious eye damage/eye irritation Non-irritating. Product dust may cause mechanical eye irritation.
Sensitization Non-sensitizer
Chronic toxicity Chronic exposure to silica dust may increase the risk of developing pneumoconiosis or silicosis, chronic diseases affecting the lungs, characterized by labored breathing, cough, reduction of work capacity, reduction of lung capacity, heart enlargement and failure

Mutagenicity Bifenthrin: Not genotoxic in laboratory studies.

Carcinogenicity No information available.

Chemical name	European Union
Bifenthrin	Carc. 2
Petroleum distillates, solvent dewaxed light paraffinic	Carc. 1B

Reproductive toxicity Bifenthrin: No toxicity to reproduction in animal studies.

Developmental toxicity Bifenthrin: Not teratogenic in animal studies.

STOT - single exposure May cause damage to organs. See listed target organs below.
STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure. See listed target organs below.

Neurological effects Bifenthrin: Causes clinical signs of neurotoxicity (tremors, impaired gait, excessive salivation) following acute or subchronic exposure. Tremors disappeared with continued exposure.

Target organ effects Bifenthrin: Central Nervous System.

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

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION

12.1. Toxicity

There are no data available for this product.

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

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates
Petroleum distillates, solvent dewaxed light paraffinic	-	96 h LC50: > 5000 mg/L (Oncorhynchus mykiss)	48 h EC50: > 1000 mg/L (Daphnia magna)

12.2. Persistence and degradability

Bifenthrin: Moderately persistent. Does not readily hydrolyze. Not readily biodegradable.

12.3. Bioaccumulative potential

Bifenthrin: The substance has a potential for bioconcentration.

12.4. Mobility in soil

Mobility in soil

No information available.

Mobility

Bifenthrin: Immobile. Not expected to reach groundwater.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

Chemical name	EU - Endocrine Disruptors Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Bifenthrin	Group III Chemical	-	-

Section 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from residues / unused products

According to the Waste Framework Directive (2008/98/EC), possibilities for reuse or reprocessing should first be considered. If this is not feasible, the material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing.

Disposal of waste and packaging must always be in accordance with all applicable local regulations.

Contaminated Packaging

It is recommended to consider possible ways of disposal in the following order:

1. Reuse or recycling should first be considered. Reuse is prohibited except by the authorisation holder. If offered for recycling, containers must be emptied and triply rinsed (or equivalent). Do not discharge rinsing water to sewer systems.
2. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.
3. Delivery of the packaging to a licensed service for disposal of hazardous waste.
4. Disposal in a landfill or burning in open air should only occur as a last resort. For disposal in a landfill containers should be emptied completely, rinsed and punctured to make them unusable for other purposes. If burned, stay out of smoke.

Section 14: TRANSPORT INFORMATION

IMDG/IMO

14.1 UN/ID no

UN3077

14.2 Proper Shipping Name

Environmentally hazardous substance, solid, n.o.s.

14.3 Hazard class

9

14.4 Packing Group	III
14.5 Marine Pollutant	Bifenthrin
Environmental Hazard	Yes
14.6 Special Provisions	None
EmS No.	F-A, S-F
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	The product is not transported in bulk by ship.

RID

14.1 UN/ID no	UN3077
14.2 Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s.
14.3 Hazard class	9
14.4 Packing Group	III
14.5 Environmental Hazard	Yes
14.6 Special Provisions	Do not release to the environment

ADR/RID

14.1 UN/ID no	UN3077
14.2 Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s.
14.3 Hazard class	9
14.4 Packing Group	III
14.5 Environmental Hazard	Yes
14.6 Special Provisions	None

ICAO/IATA

14.1 UN/ID no	UN3077
14.2 Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s.
14.3 Hazard class	9
14.4 Packing Group	III
14.5 Environmental Hazard	Yes
14.6 Special Provisions	None

Section 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**National regulations**

Seveso category in Annex 1 to Dir. 2012/18/EU: dangerous for the environment.

The employer shall assess any risks to the safety or health and any possible effect on the pregnancies or breastfeeding of workers and decide what measures should be taken (Dir. 92/85/EEC).

Young people under the age of 18 are not allowed to work with the substance.

European Union**Authorizations and/or restrictions on use:**

This product does not contain substances subject to authorization (Regulation (EC) No. 1907/2006 (REACH), Annex XIV)

This product does not contain substances subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Persistent Organic Pollutants

Not Applicable

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not Applicable

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELINCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)
Crystalline silica, quartz 14808-60-7	X	X	X	X	X	X	X	X
Bifenthrin 82657-04-3				X	X	X		
Petroleum distillates, solvent dewaxed light paraffinic 64742-56-9	X	X	X		X	X	X	X

15.2. Chemical safety assessment

A chemical safety assessment is not required to be included for this product.

Section 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under sections 2 and 3

H300 - Fatal if swallowed
H317 - May cause an allergic skin reaction
H331 - Toxic if inhaled
H350 - May cause cancer
H351 - Suspected of causing cancer
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Legend

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS: CAS (Chemical Abstracts Service)
Ceiling: Maximum limit value
DNEL: Derived No Effect Level (DNEL)
EINECS: EINECS (European Inventory of Existing Chemical Substances)
GHS: Globally Harmonized System (GHS)
IATA: International Air Transport Association (IATA)
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods (IMDG)
LC50: LC50 (lethal concentration)
LD50: LD50 (lethal dose)
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Chemicals
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail
STEL: Short term exposure limit
SVHC: SVHC: Substances of Very High Concern for Authorization:

TWA: time weighted average
vPvB: very Persistent and very Bioaccumulative

Classification procedure

Acute oral toxicity: test data
Carcinogenicity: calculation rules
Specific Target Organ Systemic Toxicity - Single Exposure: calculation rules
Specific Target Organ Toxicity - Repeated Exposure: calculation rules
Hazards to the aquatic environment, acute: calculation method
Hazards to the aquatic environment, chronic: calculation method

Key literature references and sources for data

Data measured on the product are unpublished company data. Data on ingredients are available from published literature and can be found several places.

Revision date: 2019-06-24

Reason for revision: Initial Release.

Training Advice This material should only be used by persons who are made aware of its hazardous properties and have been instructed in the required safety precautions.

Disclaimer

The information provided in this safety data sheet is believed to be accurate and reliable, but uses of the product vary and situations unforeseen by FMC Corporation may exist. The user has to check the validity of the information under local circumstances.

Prepared By:

FMC Corporation

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End of Safety Data Sheet