



SAFETY DATA SHEET

Preparation Date 13-Aug-2013

Revision Date 13-Aug-2013

Revision Number 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Name **BIFENTHRIN 2 EC**

Other means of identification

Product Code 2120901
CAS Number 82657-04-3
Formula C₂₃H₂₂ClF₃O₂
Synonyms (2-Methyl[1,1'-Biphenyl]-3-Yl) Methyl
3-(2-Chloro-3,3,3-Trifluoro-1-Propenyl)2,2-Dimethyl-Cyclopropanecarboxylate { cis
and trans isomers possible}
UN-No UN3351

Recommended use of the chemical and restrictions on use

Recommended Use Agriculture
Uses advised against Repeated contact with food. Avoid prolonged contact with eyes, skin, and clothing.

Details of the supplier of the safety data sheet

Supplier Address ACETO CORPORATION
4 Tri Harbor Court
Port Washington, NY 11050-4661
Phone: (516) 627-6000
Fax: (516) 627-6093
Email: aceto@aceto.com

Emergency Telephone Number(s)

ChemTrec: 1-800-424-9300
Outside of the United States: 1-703-527-3887


2. HAZARDS IDENTIFICATION

Classification

Acute Toxicity - Oral	Category 3
Acute Toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Gases)	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin Corrosion/Irritation	Category 1

Serious eye damage/eye irritation	Category 1
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1B
Aspiration toxicity	Category 1
Flammable liquids	Category 3

Label elements**Emergency Overview**

Signal Word DANGER		
Hazard statements Toxic if swallowed Toxic in contact with skin Fatal if inhaled Causes severe skin burns and eye damage May cause allergy or asthma symptoms or breathing difficulties if inhaled May cause an allergic skin reaction May cause genetic defects May cause cancer May be fatal if swallowed and enters airways FLAMMABLE LIQUID AND VAPOR		
		
Appearance Amber to Yellow	Physical State Liquid	Odor Aromatic Hydrocarbons

Precautionary Statements - Prevention

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

Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label)

Immediately call a POISON CENTER or doctor/physician

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

Immediately call a POISON CENTER or doctor/physician

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

If skin irritation or rash occurs: Get medical advice/attention

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Immediately call a POISON CENTER or doctor/physician

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do not induce vomiting

Rinse mouth

In case of fire: Use CO₂, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store locked up

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None known

Other Information

- Very toxic to aquatic life with long lasting effects
- Very toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS**Synonyms**

(2-Methyl[1,1'-Biphenyl]-3-Yl) Methyl
3-(2-Chloro-3,3,3-Trifluoro-1-Propenyl)2,2-Dimethyl-Cyclopropanecarboxylate { cis and trans isomers possible}

Formula

C₂₃H₂₂ClF₃O₂

Chemical Name	CAS-No	Weight %	North American Hazard Indicator
Bifenthrin Technical	82657-04-3	25	Monograph 53 [1991]
Aromatic solvent	64742-95-6	40	True
C16-C18 and C18 Unsaturated Alkylcarboxylic Acid Methyl Ester	67762-38-3	25	False
Other Ingredients	N/A	10	False

4. FIRST AID MEASURES**First Aid Measures****General Advice**

Show this safety data sheet to the doctor in attendance.

Eye Contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician or Poison Control Centre immediately.

Skin Contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. Call a physician or Poison Control Centre immediately.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Call a physician or Poison Control Centre immediately.
Ingestion	Do not induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Centre immediately.
Protection of First-aiders	Remove all sources of ignition. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Most important symptoms and effects, both acute and delayed

Main Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

<u>Flammable Properties</u>	Flammable liquid. Vapors may cause flash fire or explosion.
<u>Suitable Extinguishing Media</u>	Water spray. Carbon dioxide (CO ₂). Dry powder. Foam.
<u>Unsuitable Extinguishing Media</u>	No information available.
<u>Hazardous Combustion Products</u>	Thermal decomposition or combustion may produce hazardous gases and/or materials.

Explosion Data

Sensitivity to mechanical impact Not available.
Sensitivity to static discharge Not available.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapours. Flash back possible over considerable distance.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Evacuate personnel to safe areas. Use personal protective equipment. Avoid contact with skin, eyes and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Pay attention to flashback.

Environmental Precautions Local authorities should be advised if significant spillages cannot be contained. Do not allow material to contaminate ground water system. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Should not be released into the environment.

Methods and material for containment and cleaning up

Methods for Cleaning up Evacuate personnel to safe areas. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Clean contaminated surface thoroughly. Prevent product from entering drains. Use spark-proof tools and explosion-proof equipment. Ground and bond containers when transferring material.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Handling Use only in an area equipped with a safety shower. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation. Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Keep away from open flames, hot surfaces and sources of ignition. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Avoid repeated exposure. In case of insufficient ventilation, wear suitable respiratory equipment.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep in properly labelled containers. Keep out of the reach of children. Keep at temperatures above 4°C.

Incompatible Materials Strong oxidizing agents. (Bifenthrin Technical).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Bifenthrin Technical 82657-04-3	-	-	-
Aromatic solvent 64742-95-6	-	-	-
C16-C18 and C18 Unsaturated Alkylcarboxylic Acid Methyl Ester 67762-38-3	-	-	-
Other Ingredients N/A	-	-	-

Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/face Protection Tightly fitting safety goggles.

Skin and body protection Wear protective gloves and protective clothing.

Respiratory Protection In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations General industrial hygiene practice. Contaminated work clothing should not be allowed out of the workplace. Avoid contact with skin, eyes and clothing. For environmental protection remove and wash all contaminated protective equipment before re-use. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance Amber to Yellow
Physical State Liquid
Odor Aromatic Hydrocarbons
Odor Threshold No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	No data available	
Melting/freezing point	No data available	Literary Reference
Boiling Point/Range	No information available	
Flash Point	54 °C	Evaporation Rate Flammability (solid, gas)

Flammability Limits in Air
 upper flammability limit
 lower flammability limit

Not available

Vapor Pressure No information available
Vapor Density Not available
Specific Gravity 0.94 - 0.96 @ 20°C
Water Solubility Emulsifiable
Solubility in other solvents No information available
Partition coefficient: n-octanol/water log Pow:>6 (Bifenthrin)
Autoignition temp (°C) No data available
Decomposition temperature No data available
Viscosity, kinematic No information available
Viscosity, dynamic Not available
Explosive Properties No information available
Oxidizing Properties No information available

Estimated

Other Information

Softening Point No information available
Molecular Weight 422.87 (Bifenthrin)
VOC Content No information available
Density 7.8 - 8.0 lb/gal (940 - 960 g/L)
Bulk Density No information available

10. STABILITY AND REACTIVITY

Reactivity	Not applicable.
Chemical Stability	Stable under normal conditions
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents. (Bifenthrin Technical).
Hazardous Decomposition Products	Carbon monoxide Carbon dioxide (CO2) Hydrogen chloride gas Hydrogen fluoride
Possibility of Hazardous Reactions	None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information

Component Information

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bifenthrin Technical 82657-04-3	= 54.5 mg/kg (Rat)	> 2 g/kg (Rabbit)	-
Aromatic solvent 64742-95-6	= 8400 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 3400 ppm (Rat) 4 h > 5.2 mg/L (Rat) 4 h
C16-C18 and C18 Unsaturated Alkylcarboxylic Acid Methyl Ester 67762-38-3	> 2000 mg/kg (Rat)	-	-
Other Ingredients N/A		-	-

Information on likely routes of exposure

Eyes	Irritating to eyes. Avoid contact with eyes.
Skin	Toxic in contact with skin. Substance may cause slight skin irritation. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons. Erythema. Avoid contact with skin.
Inhalation	Toxic by inhalation. May cause irritation of the mucous membranes. May cause irritation of respiratory tract. Choking may be caused. Coughing. Inhalation may cause tachypnea, dyspnea, cyanosis, rales, hemoptysis, pulmonary edema, pneumatoceles, lipid pneumonia, or respiratory arrest may develop following ingestion and aspiration.
Ingestion	Toxic if swallowed. May be fatal if swallowed. May cause nausea, vomiting and diarrhea. Abdominal pain.

Information on toxicological effects

Symptoms No information available.

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

Chemical Name	ACGIH	IARC	NTP	OSHA
Bifenthrin Technical 82657-04-3		Monograph 53 [1991]		Present

Eye damage/irritation	No information available.
Skin Corrosion/Irritation	No information available.
Sensitization	May cause sensitization of susceptible persons by skin contact.
Reproductive Effects	No information available.
Mutagenic Effects	No information available.
Developmental Effects	No information available.
STOT - single exposure	No information available.

STOT - Repeated Exposure No information available.

Chronic Toxicity No data are available for this formulated product. In studies with laboratory animals, Bifenthrin Technical did not cause reproductive toxicity or teratogenicity. Tremors were associated with repeated exposure of laboratory animals to Bifenthrin Technical. In lifetime feeding studies conducted iwth rodents, a slight increase in the incidence of urinary bladder tumors at the highest dose in male mice was considered to be an equivocal repsonse, not evidence of a clear compound-related effect. The overall absence of genotoxicity has been demonstrated in mutagenicity tests with Bifenthrin. Chronic exposure to armomatic hydrocarbons may cause headaches, loss of sensations or feelings (such as numbness), and liver and kidney damage. Avoid repeated exposure.

Aspiration Hazard No information available.

Numerical measures of toxicity - Product Information

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document .

ATEmix (oral)	151 mg/kg
ATEmix (dermal)	300 mg/kg
ATEmix (inhalation-gas)	700 mg/L
ATEmix (inhalation-dust/mist)	0.1 mg/L
ATEmix (inhalation-vapor)	3400 mg/L
LD50 Oral:	262 mg/kg (rat)
LD50 Dermal:	> 2,000 mg/kg (rabbit)
LC50 Inhalation:	1.86 mg/L 4H (rat)

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a marine pollutant according to DOT.

Ecotoxicity

There is no known ecological information for this product.

35 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Freshwater Algae Data	Freshwater Fish Species Data	Microtox Data	Water Flea Data
Bifenthrin Technical 82657-04-3				0.00135 - 0.00195 mg/L EC50
Aromatic solvent 64742-95-6				= 6.14 mg/L EC50

Persistence / Degradability No information available.

Bioaccumulation / Accumulation No information available.

Mobility in Soil No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste Disposal Method Contact waste disposal services. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of in accordance with local regulations. Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORT INFORMATION

DOT

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Hazard Class	6.1
Subsidiary Class	3
Packing Group	III
Marine Pollutant	This product contains a chemical which is listed as a marine pollutant according to DOT.
Description	UN3351,Pyrethroid pesticide, liquid, toxic, flammable, (Contains Bifenthrin 25.1%, Xylene),6.1,(3),PG III, Marine Pollutant
Emergency Response Guide Number	131

TDG

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Hazard Class	6.1
Subsidiary Class	3
Packing Group	III
Marine Pollutant	This product contains a chemical which is listed as a marine pollutant according to TDG.
Description	UN3351,PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE,(Contains Bifenthrin 25.1%, Xylene),6.1,(3),PG III, Marine Pollutant

MEX

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Hazard Class	6.1
Subsidiary Class	3
Packing Group	III
Description	UN3351 Pyrethroid pesticide, liquid, toxic, flammable, (Contains Bifenthrin 25.1%, Xylene),6.1,(3), PG III, Marine Pollutant

ICAO

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable*
Hazard Class	6.1
Subsidiary Class	3
Packing Group	III
Description	UN3351,Pyrethroid pesticide, liquid, toxic, flammable*,(Contains Bifenthrin 25.1%, Xylene),6.1,(3), PG III, Marine Pollutant

IATA

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable*
Hazard Class	6.1
Subsidiary Class	3
Packing Group	III
Description	UN3351,Pyrethroid pesticide, liquid, toxic, flammable*,(Contains Bifenthrin 25.1%, Xylene), 6.1,(3),PG III, Marine Pollutant

IMDG/IMO

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid,toxic, flammable
Hazard Class	6.1
Subsidiary Class	3
Packing Group	III
EmS No.	F-E, S-D
Marine Pollutant	This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO
Description	UN3351, Pyrethroid pesticide, liquid, toxic, flammable,(Contains Bifenthrin 25.1%, Xylene),6.1,(3),PG III, Marine Pollutant

RID

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Hazard Class	6.1
Packing Group	III
Classification Code	TF2
Description	UN3351 Pyrethroid pesticide, liquid, toxic, flammable, (Contains Bifenthrin 25.1%, Xylene),6.1, (3),PG III,RID,Marine Pollutant
ADR/RID-Labels	6.1 + 3

ADR

UN-No	UN3351
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Hazard Class	6.1
Packing Group	III
Classification Code	TF2
Description	UN3351 Pyrethroid pesticide, liquid, toxic, flammable,(Contains Bifenthrin 25.1%, Xylene),6.1,(3),PG III,ADR, Marine Pollutant
ADR/RID-Labels	6.1 + 3

ADN

Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Hazard Class	6.1
Packing Group	III
Classification Code	TF2
Special Provisions	61, 802
Description	UN3351 Pyrethroid pesticide, liquid, toxic, flammable, (Contains Bifenthrin 25.1%, Xylene), 6.1,(3), PG III, Marine Pollutant
Hazard Labels	6.1 + 3
Limited Quantity	LQ7
Ventilation	VE01, VE02
Equipment Requirements	PP, EP, EX, TOX, A

15. REGULATORY INFORMATION

International Inventories

U.S.A. (TSCA)	Does not Comply
Canada (DSL)	Does not Comply
EU (EINECS)	Does not Comply
EU (ELINCS)	Does not Comply
Japan (ENCS)	Does not Comply
China	Does not Comply
Korea (KECL)	Does not Comply
Philippines (PICCS)	Does not Comply
Australia (AICS)	Does not Comply

Chemical Name	U.S.A. (TSCA)	Canada (DSL)	EU (EINECS)	EU (ELINCS)	
Bifenthrin Technical	-	-	-	-	
Aromatic solvent	Present	Present	Present	-	
C16-C18 and C18 Unsaturated Alkylcarboxylic Acid Methyl Ester	Present	Present	Present	-	
Other Ingredients	-	-	-	-	
Chemical Name	Japan (ENCS)	China	Korea (KECL)	Philippines (PICCS)	Australia (AICS)
Bifenthrin Technical	Present (4)-1701	Present	Present	-	-
Aromatic solvent	Present (9)-1698	Present	Present	Present	Present
C16-C18 and C18 Unsaturated Alkylcarboxylic Acid Methyl Ester	Present (7)-670	Present	Present	Present	Present
Other Ingredients	-	-	-	-	-

This material as a whole is exempt from the TSCA Inventory // FIFRA Regulated Pesticide

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:

Component	SARA 313 - Threshold Values
Bifenthrin Technical 82657-04-3 (25)	1.0 % de minimis concentration

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (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)

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

State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

This product does not contain any State Right-to-Know chemicals.

Chemical Name	New Jersey	Massachusetts	Illinois	Rhode Island	Pennsylvania
Bifenthrin Technical 82657-04-3	sn 3194		Present		

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

*Canada***WHMIS Statement**

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.

16. OTHER INFORMATION

NFPA

Health 2

Flammability 2

Instability 0

Physical Hazard 0



Preparation Date

13-Aug-2013

Revision Date

13-Aug-2013

Revision Summary

Not available

Disclaimer

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of MSDS