 <b>UPL Limited</b> Uniphos House, Madhu Park, Khar (W), Mumbai, India	Product Name	<b>BIFENTHRIN 2.5% EC</b>
	Revision	00
	Revision Date	June, 2014
	MSDS No.	UPL/A/I/003

### 1. PRODUCT AND COMPANY IDENTIFICATION :

<b>Name</b>	: UPL Limited
<b>Address</b>	: Uniphos House, Madhu Park, Khar (W), Mumbai, <b>India</b>
<b>Telephone</b>	: +91-(022)- 2646-8000 <b>Fax. :</b> +91-(022)-2604-1010
<b>Product Name</b>	: Bifenthrin 2.5% EC
<b>Synonyms</b>	: Bifenthrin 2.5 EC, Bifenthrin 2.5% w/w EC, Disect 2.5 EC, Disect 2.5% EC
<b>Chemical family</b>	: Pyrethroid
<b>Chemical Name</b>	: (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate.
<b>CAS No.</b>	: [82657-04-3]
<b>Class</b>	: Insecticide, Acaricide
<b>Molecular Formula</b>	: C <sub>23</sub> H <sub>22</sub> ClF <sub>3</sub> O <sub>2</sub>

### 2. COMPOSITION :

S. No.	Substance	CAS Number	Content (w/w)
1	Bifenthrin	82657-04-3	2.5
2	Other ingredients including emulsifier and solvent.	NA	QS
3	Total		100.00

Hazardous Components : Bifenthrin 2.5% EC

### 3. HAZARD IDENTIFICATION :

<b>Inhalation</b>	: This product is toxic if inhaled in excessive quantity and can cause nasal and respiratory irritation.
<b>Ingestion</b>	: Harmful if swallowed.
<b>Eye Contact</b>	: Irritating to eyes.
<b>Skin Contact</b>	: Irritating to skin. Skin contact may lead to skin sensation which is reversible within 12-24 hours.
<b>Other</b>	: Very toxic to aquatic organisms.
<b>Note</b>	: <i>Workers exposed to hydrocarbon solvents in high concentrations, will typically show signs of Central Nervous System depression. Giddiness and confusion, disorientation, euphoria, progressing to unconsciousness, paralysis, convulsion and death from respiratory or cardiovascular arrest may be observed.</i>


For risk and safety phrases see section 15.

### 4. FIRST AID MEASURES :

<b>Eye</b>	: Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses. Get medical attention immediately.
<b>Skin</b>	: Remove contaminated clothing and shoes immediately, then wash with plenty of water. Clean contaminated clothing and shoes before re-use or discard if they cannot be thoroughly cleaned. If skin irritation develops, get medical attention.
<b>Ingestion</b>	: Rinse mouth. Never give anything by mouth to an unconscious person. Do not induce vomiting unless told by physician. If vomiting occurs ensure patient can breathe. Get medical attention.
<b>Inhalation</b>	: Move person to fresh air. If person is not breathing, then give artificial respiration, keep patient warm and at rest.
<b>Medical Advice</b>	: No specific antidote, treat symptomatically.

### 5. FIRE FIGHTING MEASURES :

<b>Extinguishing media</b>	: Water spray (not jet), foam, dry chemical powder, CO <sub>2</sub> .
<b>Hazardous combustion products</b>	: In the event of fire, product will burn, releasing toxic and irritating gases. Release of oxides of carbon, nitrogen, sulphur along with chlorine and fluorine compounds are expected.
<b>Protective clothing</b>	: Wear protective equipment and self-contained breathing apparatus, especially in reduced air situations.
<b>Fire fighting procedures</b>	: Isolate the fire affected area. Evacuate to downwind. Wear PPE's and self-contained

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breathing apparatus especially in reduced air situations. Avoid breathing fumes or gases from fire exposed materials. Cool the fire exposed containers using water spray. Contained all the run offs.

## **6. ACCIDENTAL RELEASE MEASURES :**

- Emergency procedure** : Eliminate all sources of ignition in the vicinity of the spill and evacuate the area immediately. Avoid contact with spilled liquid or contaminated surfaces. If material is spilling from container, attempt to retain as much as possible in the original package. Prevent Spillage entering drain or watercourse.
- Personal precautions** : Avoid contact with the skin and the eyes. Ensure adequate ventilation. Take precautionary measures against static discharges.
- Environmental precautions** : Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.
- Methods for cleanup** : Absorb the spillage material with sand, dirt, clay or saw dust. If possible, collect pure material first. This may be re-usable. Scoop the contaminated soil next. Take enough soil to ensure all the material is included. This material should be disposed of at a suitable landfill. Personal protective equipment and clothing should be washed with soapy water before reuse.

## **7. HANDLING AND STORAGE :**


- Handling** : KEEP OUT OF REACH OF CHILDREN. Wear suitable personal Protective Equipment when handling and spraying. Avoid contact with skin and eyes. Avoid breathing dust/mist. Ensure adequate ventilation. While using do not eat drink or smoke. Wash thoroughly after handling. Empty containers may contain hazardous residues. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using toilet or applying cosmetics.
- Storage** : Do not store material near food, feed or drinking water. Store in a cool, dry, well ventilated, locked Area away from direct sunlight. Containers must be properly sealed. Store so that unauthorized persons do not have access.
- Conditions to avoid** : Keep away from sources of ignition. Avoid extreme heat, freezing temperature and high temperature. Keep container tightly closed. Avoid cross contamination with other pesticides, fertilizers.

## **8. EXPOSURE CONTROL / PERSONAL PROTECTION :**

- Engineering Controls** : A system of local and/or general exhaust is recommended at all process locations, to keep employee exposures below the Airborne Exposure Limits.
- Personal Protection** :
- Eye / Face** : Use safety goggles and/or a full face shield where splashing is possible. Maintain Eye wash fountain and quick-drench facilities in work area
- Skin / Hand** : Wear impervious protective clothing, including boots, gloves, apron or coveralls, as appropriate, to prevent skin contact.
- Respiratory** : Do not inhale mist.
- Hygienic procedures** : Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using toilet or applying cosmetics. Take off contaminated clothing and shoes immediately, then wash thoroughly and put on clean clothing. Remove personal protective equipment's immediately after handling this product. Before removing gloves clean them with soap and water

## **9. PHYSICAL AND CHEMICAL PROPERTIES :**

- Colour** : Pale yellow to light brown.
- Physical state** : Liquid.
- Odor** : Aromatic
- Flash point** : >45°C
- Vapor pressure** : 0.024 mPa at 25°C (Bifenthrin)
- Density** : 0.9 ± 0.02 g/mL at 20°C
- Solubility - water** : Emulsifiable

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### 10. STABILITY AND REACTIVITY :

- Stability** : Stable under normal handling and recommended warehouse and light conditions.
- Hazardous decomposition products** : On decomposition, may releasing toxic and irritating gases. Release of oxides of carbon, nitrogen, sulphur along with chlorine and fluorine compounds are expected.
- Materials incompatibility** : High temperatures, open flame, Spark, Static electricity and source of ignition.
- Hazardous polymerization** : Will not occur.

### 11. TOXICOLOGICAL INFORMATION :

#### (Bifenthrin Technical)

- Oral** : Acute oral LD<sub>50</sub>, rats : 1563 mg/kg.
- Skin and eyes** : Accute precontaneous LD<sub>50</sub>, rabbits: > 2000 mg/kg. Non irritant to skin, virtually non irritating to eyes of rabbits. No skin sensitation in guinea pigs.
- NOEL** : (1y), dog : 1.5mg/kg daily. Non teratogenic in rats and rabbits (≤2 and 8 mg/kg daily).
- Toxicity class** : WHO (a.i.) II, EPA (formulation) II

### 12. ECOLOGICAL INFORMATION :

#### (Bifenthrin Technical)

- Birds** : Acute oral LD<sub>50</sub>, bobwhite quail : 1800, mallard duck 2150 mg/kg. Dietary LC<sub>50</sub>,(8h) bobwhite quail : 4450, mallard duck : 1280 mg/kg diet.
- Fish** : LC<sub>50</sub>, (96h) for bluegill sunfish : 0.00035, rainbow trout : 0.00015 mg/L.
- Daphnia** : LC<sub>50</sub>, (48h) 0.00016 mg/L. Low solubility in water and high affinity for soil contribute to produce little impact in aquatic system under field conditions.
- Bees** : LD<sub>50</sub> (oral) : 0.1µg/bee, (contact) : 0.01462 1µg/bee.

### 13. DISPOSAL CONSIDERATIONS :

- Product** : Whenever possible, product should be used for its intended purpose, even if reclaimed from spillage (reclaimed product must be uncontaminated).
- Disposal methods** : In cases where larger amounts of the product have become unusable, it should be established whether material utilization is possible (if necessary, consult the manufacturer / suppliers). Small amounts of the product and unclean empty packaging should be packaged and sealed, labeled and transferred to a suitable incinerator in accordance with the local regulations. Whenever possible, follow directions given on container. If not available, shake out the boxes and rinse plastic bags before disposal. Treat rinsing as for product above.
- Disposal of packaging** : Empty containers may contains hazardous residues. Containers should be handled as instructed by following all container disposal directions. Break, crush or puncture and bury empty containers in a local authority landfill. Empty packaging should be packaged and sealed, labeled and transferred to a suitable incinerator in accordance with the local regulations. Do not dispose of product or rinsing into sewage system or septic tanks.

### 14. TRANSPORT INFORMATION :

- Proper shipping name** : PYRETHROID PESTICIDE, LIQUID, TOXIC, N.O.S., CONTAINS BIFENTHRIN 2.5%.
- Technical shipping name** : Bifenthrin 2.5% EC
- Freight Class Bulk** : Insecticide, Acaricide.
- Freight Class Package** : Insecticide, Acaricide.
- UN No.** : 3352
- Class** : 6.1
- Packaging group** : III
- Marine pollutant** : Yes
- Special precautions** : Do not store near foodstuffs.

### 15. REGULATORY INFORMATION :

- Hazard symbol** : Xn : Harmful.  
Xi : Irritant
- Risk phrases** : R10 : Flammable.  
R36/38 : Irritating to eyes and skin.



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<b>Safety Phrases</b>	:	R20	: Harmful if inhaled.
		R21	: Harmful if in contact with skin.
		R22	: Harmful if swallowed.
		R50	: Very toxic to aquatic organisms.
		R57	: Toxic to bees
		S 2	: Keep out of the reach of children.
		S13	: Keep away from food, drink and animal feeding stuffs.
		S16	: Keep away from source of ignition –No smoking.
		S1/2	: Keep locked up and out of the reach of children.
		S22/23	: Do not breathe dust/spray.
		S20/21	: When using do not eat, drink or smoke.
		S24/25	: Avoid contact with skin and eyes.
		S36/37/39	: Wear suitable protective clothing, gloves and eye/face protection.
		S46	: If swallowed, seek medical advice immediately and show this container or label.
	S 61	: Avoid release to the environment. Refer to special instructions/safety data sheets.	
	S62	: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.	

### 16. OTHER INFORMATION :

<b>Formulation Type</b>	:	Emulsifiable concentrate / EC.
<b>Application</b>	:	Insecticide, Acaricide.

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The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the product in terms of their safety requirements. The data does not signify any warranty with regard to the product's properties. The information contained herein is based on the present state of our knowledge as is intended to describe our products from the point of view of safety requirements. UPL Limited makes no warranty expressed or implied in respect of the adequacy of this document for any particular purpose.