



SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006 (REACH)

SECTION 1: Identification of the substance/mixture and of the company / undertaking

1.1 Product Identifier:

Mixtures

Trade name / Designation

BIOVECTROL® 10EM

Active ingredient

Etofenprox (technical)

Other Means of identification

Not applicable

Hazard components for labeling

Not applicable

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

Relevant identified uses

For Professional Use Only

Uses advised against

Uses other than recommended use

1.3 Details of the supplier of the safety data sheet

Supplier:

Name

Okada Ecotech Pte Ltd

Address

24 Pioneer Crescent,
#04-08, West Park Bizcentral,
Singapore 628557

Information contact

+65-6872 3515

E-mail

info@okada-ecotech.com

Importer / Only Representative:

Name

Address

Information contact

E-Mail

1.4 Emergency Telephone Number

Okada Ecotech Pte Ltd

+65-6872 3515

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

Classification of the mixture

Acute toxicity

Oral

Not classified

Dermal

Not classified



Inhalation (Dust)	Not classified
Skin corrosion/irritation	Not classified
Skin contact	Non-irritating (Rabbit)
Eye contact	Non-irritating (Rabbit)
Skin sensitization	Not a sensitizer (Guinea Pig)
Carcinogenicity	Not likely to be carcinogenic to humans
Reproductive Toxicity	Not Classified
Aquatic hazard	
Acute Category	No data available
Chronic Category	No data available

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]

Hazard pictograms	Not applicable
Signal word	Not applicable
Hazard statements	WHO HAZARD CLASSIFICATION - Unlikely to Present Acute Hazard in Normal Use
Precautionary statements	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501	Dispose empty container according to local rules.
Supplemental Hazard information:	Not applicable
Special rules for supplemental label elements for certain mixtures:	Not applicable
Additional labelling:	Not applicable

**2.3 Other hazards**

Adverse physicochemical effects: Not applicable
Adverse human health effects
and symptoms: Not applicable
Adverse environmental effects: Not applicable
Other adverse hazards: Not applicable

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances Not applicable

3.2 Mixtures

Substance name	CAS No.	INDEX No.	EC No.	Concentration	Classification according Regulation (EC) No. 1272 [CLP]	SCL and/or M-factor
Etofenprox	80844-07-1	604-091-00-3	407-980-2	10.00 %	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 Lact.; H362	SCL : No data available M-factor: Aquatic Chronic 1: M = 1000 Aquatic Acute 1: M = 100
Inert Ingredients & Surfactants	N.A.	N.A.	N.A.	90.00 %	N.A.	N.A.

Description of the mixture
Hazardous ingredients

Clear brown aqueous emulsion
Not applicable

Additional information:

This mixture does not contain further substances fulfilling the criteria of hazard class "acute toxicity" according to CLP regulation.

SECTION 4: FIRST AID MEASURES**4.1 Description of first aid measures**

General Information
Following inhalation

Following skin contact
Following eye contact

Remove victims from area of exposure and move to fresh air
Immediately wash with soap & water
Flush eye immediately with steady running water for at least 15 mins



Following ingestion	Drink plenty of water. Do not induce vomiting
Self-protection of the first aider	Not applicable
4.2 Most important symptoms and effects, both acute and delayed	
Symptoms	No data available
Effects	No data available
4.3 Indication of any immediate medical attention and special treatment needed	
Notes for the doctor	Treat symptomatically
Special treatment	No data available

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Not applicable (nonflammable)
Unsuitable extinguishing media	Not applicable

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products	None identified
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5.3 Advice for fire-fighters

Firefighting Instructions	Not applicable (nonflammable)
Firefighting Equipment	Not applicable (nonflammable)

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment	Not applicable
Emergency procedures	Keep unnecessary and unprotected personnel away. Wear appropriate personal protective equipment as specified in Section 8. Stop leak if possible, without personal risk.

For emergency responders

Personal protective equipment	Use personal protection recommended in Section 8.
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- 6.2 Environmental precautions Not applicable
- 6.3 Methods and material for containment and cleaning up
- For containment Prevent further leakage or spillage if safe to do so.
- For cleaning up Hose off road surfaces to prevent accident or slippery surface
- 6.4 Reference to other sections See Section 12

SECTION 7: HANDLING & STORAGE

7.1 Precautions for safe handling

- Protective measures
- Advice on safe handling Not applicable
- Fire preventions Not applicable
- Aerosol and dust generation prevention Not applicable
- Environmental precautions Not applicable

Advice on general occupational hygiene Not applicable

7.2 Conditions for safe storage, including any incompatibilities

- Storage conditions Store in a cool, dry place, away from direct sunlight and high temperature.
- Packaging materials HDPE bottles

7.3 Specific end uses

Recommendations Keep out of reach of children. Keep container closed when not in use.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limits

Limit value type (country of origin)	Substance name	EC-No.	CAS-No.	Occupational exposure limit value		Monitoring and observation processes	Peak limitation	Source
				Long term	Short term			
JSOH-OEL (JAPAN)	Etofenprox	407-980-2	80844-07-1	3 mg/m ³ , 8Hr				



Biological limit values	No data available
Exposure limits at intended use	No data available
DNEL/PNEC-values	No data available
Risk management measures according to used control banding approach	No data available

8.2 Exposure controls

Appropriate engineering controls	General ventilation is adequate
Personal protective equipment	
Eye / Face protection	None normally required
Skin protection	None normally required
Respiratory protection	None normally required
Thermal hazards	Not applicable

8.2.3 Environmental exposure controls

Consumer exposure control	Not applicable
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SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Aqueous emulsion
Physical state	Liquid
Color	Clear brown
Odor	Pleasant
Odor threshold	Not applicable
pH at 25 deg C	Not applicable
Melting point (°C)	Not applicable
Freezing point (°C)	0°C
Initial boiling point & boiling range (°C)	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper explosive limits	Not applicable
Lower explosive limits	Not applicable
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	1.0 ± 0.1
Solubility	Completely soluble in water
Partition coefficient: n-octanol/water	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity (BF/LVT/#1/100rpm/30°C)	30 ± 20 cps



Explosive properties	Not explosive
Oxidizing properties	Not oxidizing

SECTION 10: STABILITY & REACTIVITY

10.1 Reactivity	Not applicable
10.2 Chemical stability	Stable
10.3 Possibility of hazardous reactions	No hazardous reaction when handled and stored according to provisions.
10.4 Conditions to avoid	Excessive heat & prolong sunshine
10.5 Incompatible materials	Acids
10.6 Hazardous decomposition products	Oxides of carbon. Decomposition is very unlikely.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

SubstanceAcute toxicity

Practical experience / human evidence

Assessment / Classification Not classified

Animal data

	Effect dose / -concentration	Value	Species	Method	Symptoms / delayed effects	Remark
Substance: Etofenprox						
Acute oral toxicity	LD ₅₀	>2000 mg/kg	Rat	OECD401		Not classified
Acute dermal toxicity	LD ₅₀	>2000 mg/kg	Rat	OECD401		Not classified
Acute inhalative toxicity (vapor)	LC ₅₀	>5.88 mg/L/4hr	Rat	Regulation (EC) No. 440/2008, Annex, B.2		Not classified

Skin corrosion / irritation

Practical experience / human evidence

In-vitro skin test

Assessment / Classification Negative
Not classified

**Animal data**

Substance	Species	Method	Exposure time	Result / Evaluation	Remark
Etofenprox	Rabbit	OECD404		Non irritant	Not classified

Eye damage / irritation

Practical experience / human evidence

In-vitro eye test

Negative

Assessment / Classification

Not classified

Animal data

Substance	Species	Method	Result / Evaluation	Remark
Etofenprox	Rabbit	OECD405	Non irritant	Not classified

Sensitization to the respiratory tract / skinSensitization to the respiratory tract

Practical experience / human evidence

Assessment / Classification

Not available; Classification not possible

Skin sensitization

Practical experience / human evidence

Assessment / Classification

Not classified

Animal data

Substance	Effect dose / -concentration	Value	Species	Method	Result / Evaluation	Remark
Etofenprox			Guinea pig	OECD406	Not a skin sensitizer	Not classified

CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)Germ cell mutagenicity

In-vitro mutagenicity / genotoxicity

Negative

In vivo mutagenicity / genotoxicity

Negative

Assessment / Classification

Not classified

Carcinogenicity

Practical experience / human evidence

Assessment / Classification

Not classified



Animal data

Substance	Effect dose / -concentration	Value	Exposure route	Exposure time	Exposure duration	Species	Method	Result / Evaluation	Remark
Etofenprox	NOAEL					Rat, Mouse	OECD 451	Non-carcinogen	Not classified

Reproductive toxicity

Adverse effects on sexual function and fertility

Substance	Effect dose / -concentration	Value	Exposure route	Exposure time	Exposure duration	Species	Method	Result / Evaluation	Remark
Etofenprox	NOAEL					Rat	OECD 421	No reproductive toxicity	Not classified

Adverse effects on developmental toxicity

Substance	Effect dose / -concentration	Value	Exposure route	Exposure time	Exposure duration	Species	Method	Result / Evaluation	Remark
Etofenprox	NOAEL					Rat	OECD 421	No developmental toxicity	Not classified

Effects on or via lactation

No data available

Overall Assessment on CMR properties

Not classified

Specific Target Organ Toxicity (Single Exposure)

STOT SE 1 and 2

Practical experience / human evidence
 Assessment / Classification

No data available
 Classification not possible

STOT SE 3

Irritation to respiratory tract

Practical experience / human evidence
 Assessment / Classification

No data available
 Classification not possible

Narcotic effects

Practical experience / human evidence
 Assessment / Classification

No data available
 Classification not possible



Specific Target Organ Toxicity (Repeated Exposure)

STOT RE 1 and 2

Practical experience / human evidence No data available
Assessment / Classification Classification not possible

Aspiration hazard

Practical experience / human evidence No data available
Experimental data viscosity data: see SECTION 9
Assessment / Classification Classification not possible

Symptoms related to the physical, chemical and toxicological characteristics:

In case of ingestion No data available
In case of skin contact No data available
In case of inhalation No data available
In case of eye contact No data available

Mixtures

Acute toxicity

Oral LD₅₀ > 2,000 mg/kg (OECD 420)
Inhalation LC₅₀ > 5,900 mg/m³ air
Dermal Absorption LD_{50(rat)} > 2,000 mg/kg (OECD
Guideline 434)

Chronic Toxicity

Carcinogenicity No carcinogenicity
Reproductive toxicity No reproductive effect
Mutagenicity No mutagenicity

SECTION 12: ECOLOGICAL INFORMATION

The following classification and toxicological data are carried out according to the substance criteria (excluding biodegradation and bioaccumulation).

12.1 Toxicity:

Substance: Etofenprox
Aquatic toxicity
Acute (short-term) fish toxicity

Substance	Effect dose / -concentration	Value	Test duration	Species	Result / Evaluation	Method	Remark
Etofenprox	LC ₅₀	0.0027 mg/L	96 hrs	Rainbow trout		OECD 203	

**Chronic (long-term) fish toxicity**

Substance	Effect dose / -concentration	Value	Test duration	Species	Result / Evaluation	Method	Remark
Etofenprox	NOEC	0.0032 mg/L	21 d	Rainbow trout		OECD 201	

Acute (short-term) toxicity to crustacea

Substance	Effect dose / -concentration	Value	Test duration	Species	Result / Evaluation	Method	Remark
Etofenprox	EC ₅₀	0.0012 mg/L	48 hrs	Daphnia magna		OECD 202	

Chronic (long-term) toxicity to crustacea

Substance	Effect dose / -concentration	Value	Test duration	Species	Result / Evaluation	Method	Remark
Etofenprox	NOEC	0.000054 mg/L	21 d	Daphnia magna		OECD 211	

Acute (short-term) toxicity to algae and cyanobacteria

Substance	Effect dose / -concentration	Value	Test duration	Species	Result / Evaluation	Method	Remark
Etofenprox	ErC ₅₀	> 0.056 mg/L	0 - 72 hrs	Algae (Pseudokirchneriella subcapitata)		OECD 201	

Toxicity to other aquatic plants / organisms No data available
Toxicity to microorganisms No data available
Sediment toxicity No data available
Terrestrial toxicity No data available

Assessment / Classification

Substance: Etofenprox

Acute: Classified as category 1 based on the EC₅₀ for daphnia.

[Category 1, M=100]

Chronic: Classified as category 1 based on the NOEC for daphnia, lack of rapid degradability and high bioaccumulation potential. [Category 1, M=1000]



12.2 Persistence and degradability

Substance: Etofenprox
Biodegradation Not readily biodegradable
Hydrolytic Half-Life Stable at pH 4, 7 and 9.
Photolytic Half-Life DT₅₀ = 4.7 days in buffer pH 7.

Assessment / Classification Not readily biodegradable

12.3 Bioaccumulative potential

Substance: Etofenprox
Bioconcentration factor (BCF)

Substance	Species	Result	Method	Remark
Etofenprox	Bluegill	2565	OECD 305	By analogy

12.4 Mobility in soil

Substance: Etofenprox
Assessment / Classification Not available

12.5 Results of PBT and vPvB assessment

Substance: Etofenprox
This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6 Other adverse effects:

Substance: Etofenprox
This substance has no global warming potential.
This substance has no ozone depleting potential.

Additional ecotoxicological information Not available

Mixtures

Wildlife & Fish

a) Mallard Duck LD₅₀ (oral) > 2,000mg/kg



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SDS – BIOVECTROL® 10EM
ver. 1.0

b) Aquatic Animals

Species	TL _m value (ug/L, 48 hrs)
Carp	> 5,000
Goldfish	> 1,730
Ayu Fish	> 1,200
Water Flea	> 40,000 (3 hrs)
Short-necked Clam	> 490,000

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Directive 2008/98/EC (Waste Framework Directive)

Waste must be disposed of in accordance with federal, state, local, national and international regulations.

Additional information

Empty the container completely before disposal

SECTION 14: TRANSPORT INFORMATION

	Land transport (ADR/RID)	Inland waterway transport (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1 UN No.	N.A.	N.A.	N.A.	N.A.
14.2 UN Proper shipping name	N.A.	N.A.	N.A.	N.A.
14.3 Transport hazard class(es)	N.A.	N.A.	N.A.	N.A.
Hazard label(s)	N.A.	N.A.	N.A.	N.A.
14.4 Packing group	N.A.	N.A.	N.A.	N.A.
14.5 Environmental hazards	N.A.	N.A.	N.A.	N.A.

Shipping Information

D.O.T. Not Regulated

14.6 Special precautions for user

Make sure that the containers have no puncture or leakage. Avoid rough handling and dropping. Prevent collapse of cargo piles.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Additional information

Not applicable

SECTION 15: REGULATORY INFORMATION

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



EU regulations	
Authorizations and/or restrictions on use	See Section 1
Other EU regulations	Not applicable
National regulations	Registered with National Environment Agency, Singapore under Section 8 of The Control of Vectors and Pesticides Act 1998. Registration Number: SINNEAI-EmICN/003/0388

15.2 Chemical safety Assessment

For this substance & mixture, a chemical safety assessment is not required.

SECTION 16: OTHER INFORMATION

16.1	Indication of changes:	Any changes to the SDS compared to previous versions are highlighted with background color on the concerned content.
16.2	Abbreviations and acronyms:	
	CAS	Chemical Abstract Service
	DNEL	Derivative No Effect Level
	EC	European Community
	EINECS	European Inventory of Existing Chemical Substances
	OECD	The Organization for Economic Cooperation and Development
	MSHA	Mine Safety Health Administration
	NIOSH	National Institute of Occupational Safety & Health
	OEL	Occupational Exposure Limit
	PBT	Persistent, Bioaccumulative, Toxic
	NOEC	No Observed Effect Concentration
	NOEL	No Observed Effect Level
	NOAEL	No Observed Adverse Effect Level
	PNEC	Predicted No Effect Concentration
	SCOEL	Scientific Committee on Occupational Exposure Limits
	TLV	Threshold Limit Value
	TWA	Time Weighted Average
	vPvB	Very Persistent, Very Bioaccumulative Weight Percent



16.3 Key literature references and sources for data

Hazard phrase(s) referenced in section 2:

H350	May cause cancer.
H351	Suspected of causing cancer.
H225	Highly flammable liquid and vapour
H301+H311+H331	Toxic if swallowed, in contact with skin or if inhaled
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H311	Toxic in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H332	Harmful if inhaled
H336	May cause drowsiness or dizziness
H360D	May damage the unborn child.
H362	May cause harm to breast-fed children
H372	Causes damage to organs through prolonged or repeated exposure
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
H411	Toxic to aquatic life with long lasting effects

Precautionary Statements referenced in section 2:

Prevention:

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P302+P352	If on skin: Wash with plenty of water.
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P391	Collect spillage.



Storage:

- | | |
|-----------|--|
| P403+P233 | Store in a well-ventilated place. Keep container tightly closed. |
| P403+P235 | Store in a well-ventilated place. Keep cool. |

Disposal:

- | | |
|------|--|
| P501 | Dispose of contents/container to a suitable disposal site in accordance with local/national/international regulations. |
|------|--|

16.4 Classification for mixtures and used evaluation method according to regulation (EC) 1207/2008 [CLP]

See SECTION 2.1 (classification).

16.5 Relevant R-, H- and EUH-phrases (number and full text)

Not applicable

16.6 Training advice

Not applicable

16.7 Further information

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