

## SECTION 1: Identification

### 1.1. Identification

Product form : Mixture  
 Product name : Mevalone  
 Product code : 3AEY, EPA Registration Number 92331-1  
 Synonyms : Microparticle Encapsulated Terpene

### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Pesticides, agricultural  
 Restrictions on use : Use only for intended applications.

### 1.3. Supplier

**Supplier**

Eden Research plc  
 127-18 Olympic Avenue  
 Milton Park  
 Abingdon, Oxfordshire, OX14 4SA  
 UK  
 T +44 (0)1285 359555  
[info@edenresearch.com](mailto:info@edenresearch.com) - <http://www.edenresearch.com/>

### 1.4. Emergency telephone number

Emergency number : +44 (0) 1285 359555 (Monday to Friday, 09:00 to 17:00 UK)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture


**GHS US classification**

Serious eye damage/eye irritation Category 2	H319	Causes serious eye irritation
Skin sensitization, Category 1	H317	May cause an allergic skin reaction

Full text of H statements : see section 16

### 2.2. GHS Label elements, including precautionary statements

**GHS US labeling**

Hazard pictograms (GHS US) : 

Signal word (GHS US) : Warning

Hazard statements (GHS US) : H317 - May cause an allergic skin reaction  
 H319 - Causes serious eye irritation

Precautionary statements (GHS US) : P261 - Avoid breathing vapors, spray.  
 P264 - Wash hands thoroughly after handling.  
 P272 - Contaminated work clothing must not be allowed out of the workplace.  
 P280 - Wear protective gloves, protective clothing, eye protection.  
 P302+P352 - If on skin: Wash with plenty of water.  
 P333+P313 - If skin irritation or rash occurs: 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.

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

P363 - Wash contaminated clothing before reuse.

P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS US classification
geraniol	CAS-No.: 106-24-1	5 – 9.99	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317
Thymol	CAS-No.: 89-83-8	5 – 9.99	Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314
Eugenol	CAS-No.: 97-53-0	3 – 5	Eye Irrit. 2, H319 Skin Sens. 1B, H317

Full text of hazard classes and H-statements : see section 16

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general	: Get medical advice/attention if you feel unwell.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, call a doctor.
First-aid measures after skin contact	: Take off contaminated clothing and wash it before reuse. Gently wash with plenty of soap and water. Get medical attention if symptoms occur.
First-aid measures after eye contact	: Remove contact lenses, if present and easy to do. Continue rinsing. In case of contact, immediately rinse eyes with plenty of water for at least 15 minutes. Get medical advice/attention.
First-aid measures after ingestion	: If swallowed: rinse mouth. Do NOT induce vomiting. Do not give the affected person anything to drink, even if he is fully conscious. Get medical advice/attention.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: None.
Symptoms/effects after skin contact	: May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May cause gastrointestinal irritation, nausea, vomiting and diarrhea. Abdominal pain.

### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

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### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Dry chemical, CO<sub>2</sub>, or water spray or regular foam.  
Unsuitable extinguishing media : None.

#### 5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : On combustion, forms: carbon oxides (CO and CO<sub>2</sub>).

#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Do not allow run-off from fire-fighting to enter drains or water courses.  
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.  
Other information : Toxic fumes may be released. On combustion, forms: carbon oxides (CO and CO<sub>2</sub>).

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with skin and eyes.

##### 6.1.1. For non-emergency personnel

Protective equipment : For further information refer to section 8: "Exposure controls/personal protection".  
Emergency procedures : Ventilate spillage area.

##### 6.1.2. For emergency responders

Protective equipment : For further information refer to section 8: "Exposure controls/personal protection".

#### 6.2. Environmental precautions

Avoid release to the environment. Do not allow to enter drains or water courses. Notify authorities if product enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Contain or absorb spilled liquid with earth or other absorbent material. After cleaning, flush traces away with water.  
Other information : Dispose in a safe manner in accordance with local/national regulations.

#### 6.4. Reference to other sections

SECTION 8. SECTION 11. SECTION 13.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Keep out of reach of children.  
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Take off immediately all contaminated clothing and wash it before reuse.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep container tightly closed. Keep cool.  
Incompatible products : Keep away from food, drink and animal feedingstuffs.

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### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

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No additional information available

##### Eugenol (97-53-0)

No additional information available

##### geraniol (106-24-1)

No additional information available

##### Thymol (89-83-8)

No additional information available

#### 8.2. Appropriate engineering controls

Appropriate engineering controls : Good standard of general ventilation. Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

#### 8.3. Individual protection measures/Personal protective equipment

##### Personal protective equipment:

Gloves. Protective clothing.

##### Hand protection:

Butyl-rubber protective gloves. Neoprene/viton®

##### Eye protection:

Chemical goggles or safety glasses

##### Skin and body protection:

Lab coat. Normal overalls

##### Respiratory protection:

In case of inadequate ventilation wear respiratory protection.

##### Personal protective equipment symbol(s):



### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

Physical state : Liquid  
Appearance : Viscous. Capsule suspension.  
Color : Beige  
Odor : Oil of cloves  
Odor threshold : No data available  
pH : 5.7  
Melting point : ≈ 0 °C

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Freezing point	: No data available
Boiling point	: $\approx 100$ °C
Flash point	: > 200 °F
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: 1035 @ 20°C
Solubility	: Miscible with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

None.

### 10.2. Chemical stability

Stable under normal conditions of use.

### 10.3. Possibility of hazardous reactions

None under normal use.

### 10.4. Conditions to avoid

Protect from freezing.

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

On combustion, forms: carbon oxides (CO and CO<sub>2</sub>).

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Eugenol (97-53-0)	
LD50 oral	> 2000 mg/kg body weight
LD50 dermal	> 2000 mg/kg body weight

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Eugenol (97-53-0)	
LC50 Inhalation - Rat (Dust/Mist)	> 2580 mg/l
geraniol (106-24-1)	
LD50 oral	2100 mg/kg body weight
LD50 dermal	> 5000 mg/kg body weight
ATE US (oral)	2100 mg/kg body weight
Thymol (89-83-8)	
LD50 oral rat	980 ml/kg
ATE US (oral)	500 mg/kg body weight

Skin corrosion/irritation	: Not classified (Acute Dermal Irritation study JRF 6736 conducted according to OECD 404 concluded that the product is eye irritant and does not cause skin corrosion or serious eye damage.) pH: 5.7
Serious eye damage/irritation	: Causes serious eye irritation. pH: 5.7
Respiratory or skin sensitization	: May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after inhalation	: None.
Symptoms/effects after skin contact	: May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects after ingestion	: May cause gastrointestinal irritation, nausea, vomiting and diarrhea. Abdominal pain.

## SECTION 12: Ecological information

### 12.1. Toxicity

Eugenol (97-53-0)	
LC50 - Fish [1]	5.6 mg/l
EC50 - Crustacea [1]	1.13 mg/l
EC50 - Other aquatic organisms [1]	1.9 mg/l waterflea
LC50 - Fish [2]	13 mg/l
EC50 - Other aquatic organisms [2]	15.4 mg/l
EC50 72h - Algae [1]	24 mg/l
geraniol (106-24-1)	
LC50 - Fish [1]	22 mg/l
EC50 - Other aquatic organisms [1]	10.8 mg/l waterflea
EC50 - Other aquatic organisms [2]	13.1 mg/l

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Thymol (89-83-8)	
LC50 - Fish [1]	3.2 mg/l
EC50 - Crustacea [1]	3.2 ml/l
EC50 72h - Algae [1]	14 mg/l

### 12.2. Persistence and degradability

Mevalone	
Persistence and degradability	Product is biodegradable.

Eugenol (97-53-0)	
Persistence and degradability	Readily biodegradable.
Biodegradation	100 %

geraniol (106-24-1)	
Persistence and degradability	Not established.

Thymol (89-83-8)	
Persistence and degradability	Readily biodegradable.
Biodegradation	100 %

### 12.3. Bioaccumulative potential

Mevalone	
Bioaccumulative potential	Bioaccumulation unlikely.

Eugenol (97-53-0)	
Partition coefficient n-octanol/water (Log Pow)	2.27
Partition coefficient n-octanol/water (Log Kow)	1.83 @ 30°C
Bioaccumulative potential	There is no bioaccumulation.

geraniol (106-24-1)	
Partition coefficient n-octanol/water (Log Pow)	3.5
Partition coefficient n-octanol/water (Log Kow)	2.6 @ 25°C

Thymol (89-83-8)	
BCF - Fish [2]	19 l/kg
Partition coefficient n-octanol/water (Log Pow)	3.3
Bioaccumulative potential	Bioaccumulation unlikely.

### 12.4. Mobility in soil

Eugenol (97-53-0)	
Ecology - soil	Slightly soluble in: Water.

geraniol (106-24-1)	
Ecology - soil	Miscible with water.

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### Thymol (89-83-8)

Organic Carbon Normalized Adsorption Coefficient (Log Koc)	1500 @ 20°C
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### 12.5. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Disposal methods

Waste treatment methods : Dispose in a safe manner in accordance with local/national regulations.

## SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

### 14.1. UN number

Not regulated for transport

### 14.2. UN proper shipping name

Proper Shipping Name (DOT)	: Not applicable
Proper Shipping Name (TDG)	: Not applicable
Proper Shipping Name (IMDG)	: Not applicable
Proper Shipping Name (IATA)	: Not applicable

### 14.3. Transport hazard class(es)

**DOT**  
Transport hazard class(es) (DOT) : Not applicable

**TDG**  
Transport hazard class(es) (TDG) : Not applicable

**IMDG**  
Transport hazard class(es) (IMDG) : Not applicable

**IATA**  
Transport hazard class(es) (IATA) : Not applicable

### 14.4. Packing group

Packing group (DOT)	: Not applicable
Packing group (TDG)	: Not applicable
Packing group (IMDG)	: Not applicable
Packing group (IATA)	: Not applicable

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

**DOT**  
No data available



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### TDG

No data available

### IMDG

No data available

### IATA

No data available

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

Not applicable

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
Eugenol	97-53-0		-	
geraniol	106-24-1		-	
Thymol	89-83-8		-	

### 15.2. International regulations

#### CANADA

No additional information available

#### EU-Regulations

No additional information available

#### National regulations

No additional information available

### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

## SECTION 16: Other information

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Data sources : Supplier's safety documents.

Full text of H-phrases	
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation

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<b>Abbreviations and acronyms</b>	
CAS-No.	Chemical Abstract Service number
IATA	International Air Transport Association
	IBC Code = International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IMO)
IMDG	International Maritime Dangerous Goods
PBT	Persistent Bioaccumulative Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.