

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by  
Commission Regulation (EU) 2020/878



## Fenbendazole Paste Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
12.0	17.06.2025	899090-00027	Date of first issue: 16.09.2016

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

#### 1.1 Product identifier

Trade name : Fenbendazole Paste Formulation

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

Use of the Sub-  
stance/Mixture : Veterinary product

Recommended restrictions  
on use : Not applicable

#### 1.3 Details of the supplier of the safety data sheet

Company : MSD  
Piercetown  
A86 HD21 Dunboyne, Ireland

Telephone : 908-740-4000

E-mail address of person  
responsible for the SDS : EHSDATASTEWARD@msd.com

#### 1.4 Emergency telephone number

1-908-423-6000

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Reproductive toxicity, Category 2	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)



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Hazard pictograms	:	 
Signal word	:	Warning
Hazard statements	:	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	<b>Prevention:</b> P201 Obtain special instructions before use. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  <b>Response:</b> P308 + P313 IF exposed or concerned: Get medical advice/ attention. P391 Collect spillage.  <b>Storage:</b> P405 Store locked up.

### Hazardous components which must be listed on the label:

fenbendazole

### Additional Labelling

EUH208 Contains Cinnamaldehyde. May produce an allergic reaction.

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Components

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Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
fenbendazole	43210-67-9 256-145-7	Repr. 2; H361fd STOT RE 2; H373 (Liver, Stomach, Nervous system, Lymph nodes) Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 100 M-Factor (Chronic aquatic toxicity): 10	$\geq 10 - < 20$
Ethanol#	64-17-5 200-578-6 603-002-00-5	Flam. Liq. 2; H225 Eye Irrit. 2; H319  specific concentration limit Eye Irrit. 2; H319 $\geq 50\%$	$< 0.1$
Diethyl malonate#	105-53-3 203-305-9	Eye Irrit. 2; H319	$< 0.1$
2-Furaldehyde#	98-01-1 202-627-7 605-010-00-4	Flam. Liq. 3; H226 Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Carc. 2; H351 STOT SE 3; H335 Aquatic Chronic 3; H412  Acute toxicity esti- mate  Acute oral toxicity: 108 mg/kg Acute inhalation tox- icity (vapour): 1 mg/l Acute dermal toxicity: 300 mg/kg	$\geq 0.0025 - < 0.025$
Cinnamaldehyde#	104-55-2 203-213-9 606-155-00-6	Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319	$< 0.01$

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		Skin Sens. 1A; H317 specific concentration limit Skin Sens. 1A; H317 ≥ 0.01 % Acute toxicity estimate Acute dermal toxicity: 1,260 mg/kg	
Isovaleraldehyde#	590-86-3 209-691-5	Flam. Liq. 2; H225 Eye Irrit. 2; H319 Skin Sens. 1B; H317 STOT SE 3; H335 Aquatic Chronic 2; H411	≥ 0.0002 - < 0.0025
Acetaldehyde#	75-07-0 200-836-8 605-003-00-6	Flam. Liq. 1; H224 Acute Tox. 4; H302 Eye Irrit. 2; H319 Muta. 2; H341 Carc. 1B; H350 STOT SE 3; H335 Acute toxicity estimate Acute oral toxicity: 661 mg/kg	< 0.1
Trans-hex-2-en-1-ol#	928-95-0 213-191-2	Skin Corr. 1B; H314 Eye Dam. 1; H318 EUH071	< 0.1

For explanation of abbreviations see section 16.

# Voluntarily-disclosed substance

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- If inhaled : If inhaled, remove to fresh air.

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Get medical attention.

- |                         |   |   |
|-------------------------|---|---|
| In case of skin contact | : | In case of contact, immediately flush skin with soap and plenty of water.<br>Remove contaminated clothing and shoes.<br>Get medical attention.<br>Wash clothing before reuse.<br>Thoroughly clean shoes before reuse. |
| In case of eye contact  | : | Flush eyes with water as a precaution.<br>Get medical attention if irritation develops and persists.  |
| If swallowed            | : | If swallowed, DO NOT induce vomiting.<br>Get medical attention.<br>Rinse mouth thoroughly with water.   |

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

- |       |   |  |
|-------|---|--|
| Risks | : | Suspected of damaging fertility. Suspected of damaging the unborn child.<br>May cause damage to organs through prolonged or repeated exposure. |
|-------|---|--|

### 4.3 Indication of any immediate medical attention and special treatment needed

- |           |   |   |
|-----------|---|---|
| Treatment | : | Treat symptomatically and supportively. |
|-----------|---|---|

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- |                              |   |  |
|------------------------------|---|--|
| Suitable extinguishing media | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical |
|------------------------------|---|--|

- |                                |   |             |
|--------------------------------|---|-------------|
| Unsuitable extinguishing media | : | None known. |
|--------------------------------|---|-------------|

### 5.2 Special hazards arising from the substance or mixture

- |                                       |   |   |
|---------------------------------------|---|---|
| Specific hazards during fire-fighting | : | Exposure to combustion products may be a hazard to health.            |
| Hazardous combustion products         | : | Carbon oxides<br>Nitrogen oxides (NO <sub>x</sub> )<br>Sulphur oxides |

### 5.3 Advice for firefighters

- |   |   |  |
|---|---|--|
| Special protective equipment for firefighters | : | In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment. |
|---|---|--|

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Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.

### SECTION 6: Accidental release measures

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

Personal precautions : Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

#### 6.2 Environmental precautions

Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

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

Methods for cleaning up : Soak up with inert absorbent material.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

#### 6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.  
Local/Total ventilation : Use only with adequate ventilation.  
Advice on safe handling : Do not breathe vapours.  
Do not swallow.  
Avoid contact with eyes.

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Avoid prolonged or repeated contact with skin.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.  
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

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

Requirements for storage areas and containers : Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Advice on common storage : Do not store with the following product types:  
Strong oxidizing agents  
Gases

### 7.3 Specific end use(s)

Specific use(s) : No data available

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
fenbendazole	43210-67-9	TWA	100 µg/m <sup>3</sup> (OEB 2)	Internal
Propylene glycol	57-55-6	OELV - 8 hrs (TWA) (particles)	10 mg/m <sup>3</sup>	IE OEL
		OELV - 8 hrs (TWA) (total (vapour and particles))	150 ppm 470 mg/m <sup>3</sup>	IE OEL
Ethanol	64-17-5	OELV - 15 min (STEL)	1,000 ppm	IE OEL
2-Furaldehyde	98-01-1	OELV - 15 min (STEL)	5 ppm 20 mg/m <sup>3</sup>	IE OEL
Further information: Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body				
		OELV - 8 hrs (TWA)	2 ppm 8 mg/m <sup>3</sup>	IE OEL
Further information: Substances which have the capacity to penetrate intact				

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skin when they come in contact with it, and be absorbed into the body				
Acetaldehyde	75-07-0	OELV - 15 min (STEL)	25 ppm 45 mg/m3	IE OEL

### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
Propylene glycol	Workers	Inhalation	Long-term local effects	10 mg/m3
	Workers	Inhalation	Long-term systemic effects	168 mg/m3
	Consumers	Inhalation	Long-term local effects	10 mg/m3
	Consumers	Inhalation	Long-term systemic effects	50 mg/m3
Glycerine	Workers	Inhalation	Long-term local effects	56 mg/m3
	Consumers	Ingestion	Long-term systemic effects	229 mg/kg bw/day
	Consumers	Inhalation	Long-term local effects	33 mg/m3
Ethanol	Workers	Inhalation	Long-term systemic effects	380 mg/m3
	Workers	Skin contact	Long-term systemic effects	267 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	114 mg/m3
2-Furaldehyde	Workers	Inhalation	Long-term systemic effects	17.8 mg/m3
	Workers	Inhalation	Acute systemic effects	152 mg/m3
	Workers	Inhalation	Long-term local effects	8 mg/m3
	Workers	Inhalation	Acute local effects	20 mg/m3
	Workers	Skin contact	Long-term systemic effects	4 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	8 mg/m3
	Consumers	Inhalation	Acute systemic effects	136 mg/m3
	Consumers	Inhalation	Long-term local effects	8 mg/m3
	Consumers	Inhalation	Acute local effects	20 mg/m3
	Consumers	Skin contact	Long-term systemic effects	2.4 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	2.4 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	2.4 mg/kg bw/day
Cinnamaldehyde	Workers	Inhalation	Long-term systemic effects	2.204 mg/m3



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	Workers	Skin contact	Long-term systemic effects	2.513 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.543 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0.625 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	2.5 mg/kg bw/day

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006

Substance name	Environmental Compartment	Value
fenbendazole		0.0001 mg/l
Propylene glycol	Fresh water	260 mg/l
	Freshwater - intermittent	183 mg/l
	Marine water	26 mg/l
	Sewage treatment plant	20000 mg/l
	Fresh water sediment	572 mg/kg dry weight (d.w.)
	Marine sediment	57.2 mg/kg dry weight (d.w.)
Glycerine	Soil	50 mg/kg dry weight (d.w.)
	Fresh water	0.885 mg/l
	Marine water	0.0885 mg/l
	Intermittent use/release	8.85 mg/l
	Sewage treatment plant	1000 mg/l
	Fresh water sediment	3.3 mg/kg dry weight (d.w.)
Ethanol	Marine sediment	0.33 mg/kg dry weight (d.w.)
	Soil	0.141 mg/kg dry weight (d.w.)
	Fresh water	0.96 mg/l
	Freshwater - intermittent	2.75 mg/l
	Marine water	0.79 mg/l
	Sewage treatment plant	580 mg/l
2-Furaldehyde	Fresh water sediment	3.6 mg/kg dry weight (d.w.)
	Marine sediment	2.9 mg/kg dry weight (d.w.)
	Soil	0.63 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	380 mg/kg food
	Fresh water	0.033 mg/l
	Freshwater - intermittent	0.027 mg/l
	Marine water	0.003 mg/l
	Sewage treatment plant	7.6 mg/l
	Fresh water sediment	0.12 mg/kg dry weight (d.w.)
	Marine sediment	0.012 mg/kg dry weight (d.w.)
	Soil	2.6 mg/kg dry

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		weight (d.w.)
	Oral (Secondary Poisoning)	35.3 mg/kg food
Cinnamaldehyde	Fresh water	0.021 mg/l
	Marine water	0.002 mg/l
	Freshwater - intermittent	0.21 mg/l
	Sewage treatment plant	7.1 mg/l
	Fresh water sediment	0.021 mg/kg dry weight (d.w.)
	Marine sediment	0.002 mg/kg dry weight (d.w.)
	Soil	0.004 mg/kg dry weight (d.w.)

### 8.2 Exposure controls

#### Engineering measures

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Laboratory operations do not require special containment.

#### Personal protective equipment

Eye/face protection : Wear safety glasses with side shields or goggles.  
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.  
Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Hand protection  
Material : Chemical-resistant gloves

Skin and body protection : Work uniform or laboratory coat.

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type : Filter should conform to I.S. EN 14387  
Combined particulates and organic vapour type (A-P)

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : paste

Colour : white to off-white

Odour : cinnamon-like

Odour Threshold : No data available

Melting point/freezing point : No data available

Initial boiling point and boiling : No data available

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range

Flammability (solid, gas) : Not applicable

Flammability (liquids) : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

pH : 6 - 8

Viscosity

Viscosity, kinematic : No data available

Solubility(ies)

Water solubility : insoluble

Partition coefficient: n-octanol/water : Not applicable

Vapour pressure : No data available

Relative density : No data available

Density : No data available

Relative vapour density : No data available

Particle characteristics

Particle size : No data available

### 9.2 Other information

Explosives : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Evaporation rate : No data available

Molecular weight : No data available

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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Not classified as a reactivity hazard.

#### 10.2 Chemical stability

Stable under normal conditions.

#### 10.3 Possibility of hazardous reactions

Hazardous reactions : Can react with strong oxidizing agents.

#### 10.4 Conditions to avoid

Conditions to avoid : None known.

#### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents

#### 10.6 Hazardous decomposition products

No hazardous decomposition products are known.

### SECTION 11: Toxicological information

#### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion  
Eye contact

##### Acute toxicity

|| Not classified based on available information.

##### Components:

##### fenbendazole:

|| Acute oral toxicity : LD50 (Rat): > 10,000 mg/kg  
LD50 (Mouse): > 10,000 mg/kg

##### Ethanol:

|| Acute oral toxicity : LD50 (Rat): 10,470 mg/kg  
Method: OECD Test Guideline 401

|| Acute inhalation toxicity : LC50 (Rat, male): 116.9 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

|| Acute dermal toxicity : LD50 (Rabbit): > 15,800 mg/kg

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Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg
Acute dermal toxicity	: LD50 (Rat): > 2,000 mg/kg Method: OECD Test Guideline 402 Remarks: Based on data from similar materials

### 2-Furaldehyde:

Acute oral toxicity	: LD50 (Rat): 108 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	: LC50 (Rat): 1 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	: Acute toxicity estimate: 300 mg/kg Method: Expert judgement

### Cinnamaldehyde:

Acute oral toxicity	: LD50 (Rat): 2,200 mg/kg
Acute dermal toxicity	: LD50 (Rabbit): 1,260 mg/kg

### Isovaleraldehyde:

Acute oral toxicity	: LD50 (Rat): 5,740 mg/kg
Acute inhalation toxicity	: LC50 (Rat): 42.7 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	: LD50 (Rabbit): 2,534 mg/kg

### Acetaldehyde:

Acute oral toxicity	: LD50 (Rat): 661 mg/kg
Acute dermal toxicity	: LD50 (Rabbit): 3,540 mg/kg

### Trans-hex-2-en-1-ol:

Acute oral toxicity	: LD50 (Rat): 3,500 mg/kg
Acute inhalation toxicity	: Assessment: Corrosive to the respiratory tract.
Acute dermal toxicity	: LD50 (Rabbit): 4,500 mg/kg

### Skin corrosion/irritation

Not classified based on available information.

### Components:

fenbendazole:

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Species	: Rabbit
Result	: No skin irritation

### Ethanol:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

### Diethyl malonate:

Species	: Rabbit
Result	: No skin irritation

### 2-Furaldehyde:

Result	: Skin irritation
Remarks	: Based on national or regional regulation.

### Cinnamaldehyde:

Species	: human skin
Result	: Skin irritation

### Isovaleraldehyde:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: Mild skin irritation

### Acetaldehyde:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

### Trans-hex-2-en-1-ol:

Species	: reconstructed human epidermis (RhE)
Method	: OECD Test Guideline 431
Result	: Corrosive after 3 minutes to 1 hour of exposure

### Serious eye damage/eye irritation

Not classified based on available information.

### Components:

#### fenbendazole:

Species	: Rabbit
Result	: No eye irritation

#### Ethanol:

Species	: Rabbit
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Method	: OECD Test Guideline 405
Result	: Irritation to eyes, reversing within 21 days

### Diethyl malonate:

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days

### 2-Furaldehyde:

Species	: Rabbit
Method	: OECD Test Guideline 405
Result	: Irritation to eyes, reversing within 21 days

### Cinnamaldehyde:

Species	: Rabbit
Method	: OECD Test Guideline 405
Result	: Irritation to eyes, reversing within 21 days

### Isovaleraldehyde:

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days

### Acetaldehyde:

Species	: Rabbit
Result	: Irritation to eyes, reversing within 21 days

### Trans-hex-2-en-1-ol:

Result	: Irreversible effects on the eye
Remarks	: Based on skin corrosivity.

## Respiratory or skin sensitisation

### Skin sensitisation

Not classified based on available information.

### Respiratory sensitisation

Not classified based on available information.

### Components:

#### Ethanol:

Test Type	: Mouse ear swelling test (MEST)
Exposure routes	: Skin contact
Species	: Mouse
Result	: negative

#### Diethyl malonate:

Test Type	: Buehler Test
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Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative
Remarks	: Based on data from similar materials

### 2-Furaldehyde:

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

### Cinnamaldehyde:

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Result	: positive

Assessment	: Probability or evidence of high skin sensitisation rate in humans
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### Isovaleraldehyde:

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: positive
Remarks	: Based on data from similar materials

Assessment	: Probability or evidence of low to moderate skin sensitisation rate in humans
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### Acetaldehyde:

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: negative

### Trans-hex-2-en-1-ol:

Test Type	: Local lymph node assay (LLNA)
Exposure routes	: Skin contact
Species	: Mouse
Method	: OECD Test Guideline 429
Result	: negative
Remarks	: Based on data from similar materials



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### Germ cell mutagenicity

|| Not classified based on available information.

#### Components:

##### **fenbendazole:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Result: negative
		Test Type: DNA Repair Result: negative
		Test Type: Chromosomal aberration Result: negative
		Test Type: in vitro assay Test system: mouse lymphoma cells Metabolic activation: Metabolic activation Result: equivocal

##### **Ethanol:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative
		Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative
		Test Type: Chromosome aberration test in vitro Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Rat Application Route: Ingestion Result: negative

##### **Diethyl malonate:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: Directive 67/548/EEC, Annex, B.13/14 Result: negative
		Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative Remarks: Based on data from similar materials

##### **2-Furaldehyde:**

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471
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Genotoxicity in vivo	Result: negative
	Test Type: In vitro mammalian cell gene mutation test Result: positive
	Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: positive
	Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro) Result: positive
	Test Type: In vitro sister chromatid exchange assay in mammalian cells Result: positive
	: Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo Species: Rat Application Route: Ingestion Result: negative
	Test Type: Transgenic rodent somatic cell gene mutation assay Species: Mouse Application Route: Ingestion Result: negative

### Cinnamaldehyde:

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Result: negative
	Test Type: In vitro mammalian cell gene mutation test Result: negative
	Test Type: Chromosome aberration test in vitro Result: negative
Genotoxicity in vivo	: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Ingestion Result: negative Remarks: Based on data from similar materials
	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Intraperitoneal injection Result: negative

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Test Type: Mutagenicity (in vivo mammalian bone-marrow  
cytogenetic test, chromosomal analysis)  
Species: Mouse  
Application Route: Ingestion  
Result: negative

Test Type: Unscheduled DNA synthesis (UDS) test with  
mammalian liver cells in vivo  
Species: Rat  
Application Route: Ingestion  
Result: negative

### Isovaleraldehyde:

Genotoxicity in vitro

: Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative  
Remarks: Based on data from similar materials

Test Type: DNA damage and repair, unscheduled DNA syn-  
thesis in mammalian cells (in vitro)  
Result: positive  
Remarks: Based on data from similar materials

Genotoxicity in vivo

: Test Type: Mammalian erythrocyte micronucleus test (in vivo  
cytogenetic assay)  
Species: Mouse  
Application Route: Intraperitoneal injection  
Method: OECD Test Guideline 474  
Result: negative

### Acetaldehyde:

Genotoxicity in vitro

: Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Result: positive

Test Type: Chromosome aberration test in vitro  
Result: positive

Test Type: in vitro micronucleus test  
Result: positive

Test Type: In vitro sister chromatid exchange assay in mam-  
malian cells  
Result: positive

Test Type: DNA damage and repair, unscheduled DNA syn-  
thesis in mammalian cells (in vitro)  
Result: positive

Genotoxicity in vivo

: Test Type: In vivo micronucleus test

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	Species: Rat
	Application Route: Intraperitoneal injection
	Result: positive
	Test Type: Mammalian bone marrow sister chromatid exchange
	Species: Mouse
	Application Route: Intraperitoneal injection
	Result: positive
Germ cell mutagenicity- Assessment	: Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

### Trans-hex-2-en-1-ol:

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES)
	Method: OECD Test Guideline 471
	Result: negative
	Test Type: in vitro micronucleus test
	Method: OECD Test Guideline 487
	Result: negative
Genotoxicity in vivo	: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
	Species: Mouse
	Application Route: Intraperitoneal injection
	Method: OECD Test Guideline 474
	Result: negative
	Remarks: Based on data from similar materials

### Carcinogenicity

Not classified based on available information.

### Components:

#### fenbendazole:

Species	: Mouse
Application Route	: oral (feed)
Exposure time	: 2 Years
NOAEL	: 405 mg/kg body weight
Result	: negative

Species	: Rat
Application Route	: Oral
Exposure time	: 2 Years
NOAEL	: 5 mg/kg body weight
Result	: negative
Target Organs	: Lymph nodes, Liver

#### 2-Furaldehyde:

Species	: Mouse
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Application Route	: Ingestion
Exposure time	: 103 weeks
Method	: OECD Test Guideline 451
Result	: positive
Remarks	: The mechanism or mode of action is not relevant in humans.

Species	: Hamster
Application Route	: inhalation (vapour)
Exposure time	: 52 weeks
Result	: negative

Species	: Mouse
Application Route	: Skin contact
Exposure time	: 47 weeks
Result	: positive

Carcinogenicity - Assessment	: Limited evidence of carcinogenicity in animal studies
------------------------------	---

### **Cinnamaldehyde:**

Species	: Rat
Application Route	: Ingestion
Exposure time	: 106 weeks
Result	: negative
Remarks	: Based on data from similar materials

Species	: Mouse
Application Route	: Intraperitoneal injection
Exposure time	: 24 weeks
Result	: negative

### **Isovaleraldehyde:**

Species	: Rat
Application Route	: inhalation (vapour)
Exposure time	: 2 Years
Result	: negative
Remarks	: Based on data from similar materials

### **Acetaldehyde:**

Species	: Rat
Application Route	: Inhalation
Exposure time	: 121 weeks
Result	: positive

Carcinogenicity - Assessment	: Sufficient evidence of carcinogenicity in animal experiments
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### **Reproductive toxicity**

|| Suspected of damaging fertility. Suspected of damaging the unborn child.

### **Components:**

**fenbendazole:**

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- |                                    |   |
|------------------------------------|---|
| Effects on fertility               | : Test Type: Three-generation reproduction toxicity study<br>Species: Rat<br>Application Route: oral (feed)<br>General Toxicity - Parent: NOAEL: 15 mg/kg body weight<br>Fertility: LOAEL: 45 mg/kg body weight<br>Result: Effects on fertility   |
| Effects on foetal development      | : Test Type: Development<br>Species: Dog, female<br>Application Route: Oral<br>Developmental Toxicity: LOAEL: 100 mg/kg body weight<br>Result: Embryotoxic effects and adverse effects on the offspring were detected., No teratogenic effects<br><br>Test Type: Embryo-foetal development<br>Species: Rabbit<br>Application Route: Oral<br>Developmental Toxicity: NOAEL: 25 mg/kg body weight<br>Result: Fetotoxicity<br><br>Test Type: Embryo-foetal development<br>Species: Rabbit<br>Application Route: Oral<br>Developmental Toxicity: LOAEL: 63 mg/kg body weight<br><br>Test Type: Embryo-foetal development<br>Species: Rat<br>Application Route: Oral<br>Developmental Toxicity: NOAEL: 120 mg/kg body weight<br>Result: No effects on foetal development |
| Reproductive toxicity - Assessment | : Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.  |

### Ethanol:

- |                      |   |
|----------------------|---|
| Effects on fertility | : Test Type: Two-generation reproduction toxicity study<br>Species: Mouse<br>Application Route: Ingestion<br>Result: negative |
|----------------------|---|

### Diethyl malonate:

- |                               |  |
|-------------------------------|--|
| Effects on fertility          | : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test<br>Species: Rat<br>Application Route: Ingestion<br>Method: OECD Test Guideline 422<br>Result: negative<br>Remarks: Based on data from similar materials |
| Effects on foetal development | : Test Type: Combined repeated dose toxicity study with the  |

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|| ment  
reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 422  
Result: negative  
Remarks: Based on data from similar materials

### 2-Furaldehyde:

|| Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

### Cinnamaldehyde:

|| Effects on foetal development : Test Type: Embryo-foetal development  
Species: Mouse  
Application Route: Ingestion  
Result: negative

### Acetaldehyde:

|| Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

### Trans-hex-2-en-1-ol:

|| Effects on fertility : Test Type: Combined repeated dose toxicity study with the  
reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 422  
Result: negative  
Remarks: Based on data from similar materials

|| Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: negative  
Remarks: Based on data from similar materials

### STOT - single exposure

|| Not classified based on available information.

### Components:

#### 2-Furaldehyde:

|| Assessment : May cause respiratory irritation.

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### Isovaleraldehyde:

|| Assessment : May cause respiratory irritation.

### Acetaldehyde:

|| Assessment : May cause respiratory irritation.

### STOT - repeated exposure

|| May cause damage to organs through prolonged or repeated exposure.

#### Components:

##### fenbendazole:

|| Exposure routes : Ingestion  
|| Target Organs : Liver, Stomach, Nervous system, Lymph nodes  
|| Assessment : May cause damage to organs through prolonged or repeated exposure.

### 2-Furaldehyde:

|| Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

### Repeated dose toxicity

#### Components:

##### fenbendazole:

|| Species : Rat  
|| LOAEL : 500 mg/kg  
|| Application Route : Oral  
|| Exposure time : 2 Weeks  
|| Target Organs : Kidney, Liver

|| Species : Rat  
|| NOAEL : > 2,500 mg/kg  
|| Application Route : Oral  
|| Exposure time : 30 Days  
|| Remarks : No significant adverse effects were reported

|| Species : Rat  
|| LOAEL : 1,600 mg/kg  
|| Application Route : Oral  
|| Exposure time : 90 Days  
|| Target Organs : Central nervous system  
|| Symptoms : Tremors

|| Species : Dog  
|| NOAEL : 4 mg/kg  
|| LOAEL : 8 mg/kg  
|| Exposure time : 6 Months  
|| Target Organs : Stomach, Nervous system, Lymph nodes



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### Ethanol:

Species	: Rat
NOAEL	: 1,730 mg/kg
LOAEL	: 3,200 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days

### 2-Furaldehyde:

Species	: Rat
NOAEL	: 53 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks

### Cinnamaldehyde:

Species	: Rat
NOAEL	: 200 mg/kg
Application Route	: Ingestion
Exposure time	: 12 Weeks

### Acetaldehyde:

Species	: Rat
NOAEL	: 125 mg/kg
LOAEL	: 675 mg/kg
Application Route	: Ingestion
Exposure time	: 28 Days

Species	: Rat
NOAEL	: 0.3 mg/kg
LOAEL	: 1 mg/kg
Application Route	: inhalation (vapour)
Exposure time	: 13 Weeks

### Trans-hex-2-en-1-ol:

Species	: Rat
NOAEL	: > 100 mg/kg
Application Route	: Ingestion
Exposure time	: 98 Days
Remarks	: Based on data from similar materials

### Aspiration toxicity

|| Not classified based on available information.

### Components:

#### fenbendazole:

|| No aspiration toxicity classification

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### 11.2 Information on other hazards

#### Endocrine disrupting properties

|| Not classified based on available information.

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

#### Experience with human exposure

#### Components:

##### fenbendazole:

|| Ingestion : Symptoms: Rapid respiration, Salivation, anorexia, Diarrhoea

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

##### fenbendazole:

|| Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.009 mg/l  
Exposure time: 21 d

|| Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.0088 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

|| M-Factor (Acute aquatic toxicity) : 100

|| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.00113 mg/l  
Exposure time: 21 Days  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

|| M-Factor (Chronic aquatic toxicity) : 10

##### Ethanol:

|| Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 14,200 mg/l  
Exposure time: 96 h

|| Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 5,012 mg/l  
Exposure time: 48 h

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Toxicity to algae/aquatic plants	: ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l Exposure time: 72 h  EC10 (Chlorella vulgaris (Fresh water algae)): 11.5 mg/l Exposure time: 72 h
Toxicity to microorganisms	: EC50 (Protozoa): 5,800 mg/l Exposure time: 4 h
Toxicity to fish (Chronic toxicity)	: NOEC: $\geq$ 79 mg/l Exposure time: 100 d Species: Oryzias latipes (Japanese medaka)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: 9.6 mg/l Exposure time: 9 d Species: Daphnia magna (Water flea)

### Diethyl malonate:

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): 12 - 17 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 179 mg/l Exposure time: 48 h Method: Directive 67/548/EEC, Annex V, C.2.
Toxicity to algae/aquatic plants	: ErC50 (Desmodesmus subspicatus (green algae)): > 800 mg/l Exposure time: 72 h  EC10 (Desmodesmus subspicatus (green algae)): 115 mg/l Exposure time: 72 h
Toxicity to microorganisms	: EC50 (Pseudomonas putida): 3,097 mg/l Exposure time: 16 h Method: DIN 38 412 Part 8

### 2-Furaldehyde:

Toxicity to fish	: EC50 (Leuciscus idus (Golden orfe)): 29 mg/l Exposure time: 48 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 29 mg/l Exposure time: 24 h
Toxicity to algae/aquatic plants	: NOEC (Microcystis aeruginosa (blue-green algae)): 2.7 mg/l Exposure time: 8 d
Toxicity to microorganisms	: EC50 : 760 mg/l Exposure time: 30 min Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	: NOEC: 0.33 mg/l Exposure time: 12 d Species: Danio rerio (zebra fish)

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1.9 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

### Cinnamaldehyde:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 4.15 mg/l  
Exposure time: 96 h  
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.21 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Chlorella vulgaris (Fresh water algae)): 16.09 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : 71 mg/l  
Exposure time: 3 h  
Method: ISO 8192

### Isovaleraldehyde:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 3.25 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 177 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 137.37 mg/l  
Exposure time: 96 h  
EC10 (Desmodesmus subspicatus (green algae)): 101.83 mg/l  
Exposure time: 96 h

Toxicity to microorganisms : EC10 (Pseudomonas putida): 310 mg/l  
Exposure time: 17 h  
Method: DIN 38 412 Part 8

### Acetaldehyde:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 30.8 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 57.4 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 100

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plants	mg/l
	Exposure time: 72 h
	Method: OECD Test Guideline 201
	EC10 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l
	Exposure time: 72 h
	Method: OECD Test Guideline 201

### Trans-hex-2-en-1-ol:

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
	Exposure time: 96 h
	Method: OECD Test Guideline 203
	Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 163 mg/l
	Exposure time: 48 h
	Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): 226 mg/l
	Exposure time: 72 h
	Method: OECD Test Guideline 201

## 12.2 Persistence and degradability

### Components:

#### Ethanol:

Biodegradability	: Result: Readily biodegradable.
	Biodegradation: 84 %
	Exposure time: 20 d

#### Diethyl malonate:

Biodegradability	: Result: Readily biodegradable.
	Biodegradation: 99 %
	Exposure time: 28 d
	Method: Regulation (EC) No. 440/2008, Annex, C.4-A

#### 2-Furaldehyde:

Biodegradability	: Result: Readily biodegradable.
	Biodegradation: 93.5 %
	Exposure time: 14 d

#### Cinnamaldehyde:

Biodegradability	: Result: Readily biodegradable.
	Biodegradation: 100 %
	Exposure time: 28 d
	Method: OECD Test Guideline 301B

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### Isovaleraldehyde:

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 49.5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

### Acetaldehyde:

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 80 %  
Exposure time: 14 d  
Method: OECD Test Guideline 301C

### Trans-hex-2-en-1-ol:

Biodegradability : Result: Readily biodegradable.  
Remarks: Based on data from similar materials

## 12.3 Bioaccumulative potential

### Components:

#### fenbendazole:

Partition coefficient: n-octanol/water : log Pow: 3.32

#### Ethanol:

Partition coefficient: n-octanol/water : log Pow: -0.35

#### Diethyl malonate:

Partition coefficient: n-octanol/water : log Pow: 0.96

#### 2-Furaldehyde:

Partition coefficient: n-octanol/water : log Pow: 0.83  
Remarks: Calculation

#### Cinnamaldehyde:

Partition coefficient: n-octanol/water : log Pow: 2.107

#### Isovaleraldehyde:

Partition coefficient: n-octanol/water : log Pow: 1.5

#### Acetaldehyde:

Partition coefficient: n-octanol/water : log Pow: 0.45

#### Trans-hex-2-en-1-ol:

Partition coefficient: n-octanol/water : log Pow: 1.61  
Remarks: Calculation

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### 12.4 Mobility in soil

#### Components:

##### **fenbendazole:**

Distribution among environmental compartments : log Koc: 3.8 - 4.7  
Method: FDA 3.08

##### **Ethanol:**

Distribution among environmental compartments : log Koc: 0.2

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product	: Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities. Do not dispose of waste into sewer.
Contaminated packaging	: Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

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## SECTION 14: Transport information

### 14.1 UN number or ID number

ADN : UN 3082

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<b>ADR</b>	:	UN 3082
<b>RID</b>	:	UN 3082
<b>IMDG</b>	:	UN 3082
<b>IATA</b>	:	UN 3082

### 14.2 UN proper shipping name

<b>ADN</b>	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (fenbendazole)
<b>ADR</b>	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (fenbendazole)
<b>RID</b>	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (fenbendazole)
<b>IMDG</b>	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (fenbendazole)
<b>IATA</b>	:	Environmentally hazardous substance, liquid, n.o.s. (fenbendazole)

### 14.3 Transport hazard class(es)

	Class	Subsidiary risks
<b>ADN</b>	:	9
<b>ADR</b>	:	9
<b>RID</b>	:	9
<b>IMDG</b>	:	9
<b>IATA</b>	:	9

### 14.4 Packing group

<b>ADN</b>	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
<b>ADR</b>	
Packing group	: III
Classification Code	: M6
Hazard Identification Number	: 90
Labels	: 9
Tunnel restriction code	: (-)
<b>RID</b>	
Packing group	: III



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Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9

### IMDG

Packing group : III  
Labels : 9  
EmS Code : F-A, S-F

### IATA (Cargo)

Packing instruction (cargo aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### IATA (Passenger)

Packing instruction (passenger aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

## 14.5 Environmental hazards

### ADN

Environmentally hazardous : yes

### ADR

Environmentally hazardous : yes

### RID

Environmentally hazardous : yes

### IMDG

Marine pollutant : yes

### IATA (Passenger)

Environmentally hazardous : yes

### IATA (Cargo)

Environmentally hazardous : yes

## 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## 14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

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REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)

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: Conditions of restriction for the following entries should be considered:  
Number on list 3

Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor.

Substance(s) or mixture(s) are listed here according to their appearance in the regulation, irrespective of their use/purpose or the conditions of the restriction. Please refer to the conditions in corresponding Regulation to determine whether an entry is applicable to the placing on the market or not.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).

Regulation (EU) No 2024/590 on substances that deplete the ozone layer

Regulation (EU) 2019/1021 on persistent organic pollutants (recast)

Regulation (EU) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals

REACH - List of substances subject to authorisation (Annex XIV)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: Not applicable

: Not applicable

: Not applicable

: Not applicable

: Not applicable

E1

ENVIRONMENTAL  
HAZARDS

Quantity 1  
100 t

Quantity 2  
200 t

### Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

### The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

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### SECTION 16: Other information

Other information : Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

#### Full text of H-Statements

H224	: Extremely flammable liquid and vapour.
H225	: Highly flammable liquid and vapour.
H226	: Flammable liquid and vapour.
H301	: Toxic if swallowed.
H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
H312	: Harmful in contact with skin.
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.
H330	: Fatal if inhaled.
H335	: May cause respiratory irritation.
H341	: Suspected of causing genetic defects.
H350	: May cause cancer.
H351	: Suspected of causing cancer.
H361fd	: Suspected of damaging fertility. Suspected of damaging the unborn child.
H373	: May cause damage to organs through prolonged or repeated exposure if swallowed.
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.
H412	: Harmful to aquatic life with long lasting effects.
EUH071	: Corrosive to the respiratory tract.

#### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Carc.	: Carcinogenicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Muta.	: Germ cell mutagenicity
Repr.	: Reproductive toxicity
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT RE	: Specific target organ toxicity - repeated exposure
STOT SE	: Specific target organ toxicity - single exposure
IE OEL	: Ireland. List of Chemical Agents and Carcinogens with Occupational Exposure Limit Values - Code of Practice, Schedule 1 and 2

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IE OEL / OELV - 8 hrs (TWA) : Occupational exposure limit value (8-hour reference period)  
IE OEL / OELV - 15 min : Occupational exposure limit value (15-minute reference period)  
(STEL) (STEL)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

### Classification of the mixture:

Repr. 2	H361fd
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method

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IE / EN