

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

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

#### 1.1 Product identifier

Trade name : Permethrin Formulation

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

Use of the Sub-stance/Mixture : Veterinary product

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

Company : MSD  
Walton Manor, Walton  
MK7 7AJ Milton Keynes - United Kingdom

Telephone : +1-908-740-4000

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)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Germ cell mutagenicity, Category 1B	H340: May cause genetic defects.
Carcinogenicity, Category 1B	H350: May cause cancer.
Reproductive toxicity, Category 2	H361: Suspected of damaging fertility or the unborn child.
Specific target organ toxicity - single exposure, Category 3	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
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)





# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

- Hazard pictograms :    
- Signal word : Danger
- Hazard statements : H226 Flammable liquid and vapour.  
H304 May be fatal if swallowed and enters airways.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H336 May cause drowsiness or dizziness.  
H340 May cause genetic defects.  
H350 May cause cancer.  
H361 Suspected of damaging fertility or 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 : **Prevention:**  
P201 Obtain special instructions before use.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- Response:**  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
P391 Collect spillage.

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

Solvent naphtha (petroleum), light aromatic  
Xylene  
Permethrin (ISO)  
4-Nonylphenol, branched, ethoxylated

### Additional Labelling

Restricted to professional users.

### 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.  
Vapours may form explosive mixture with air.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Components

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version  
3.5

Revision Date:  
17.03.2021

SDS Number:  
835386-00011

Date of last issue: 10.10.2020  
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Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Solvent naphtha (petroleum), light aromatic	64742-95-6 265-199-0 649-356-00-4	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Muta. 1B; H340 Carc. 1B; H350 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 2; H411	60 - 70
Xylene	1330-20-7 215-535-7 601-022-00-9	Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 STOT RE 2; H373 (Auditory system) Asp. Tox. 1; H304 Aquatic Chronic 3; H412	6 - 16
Permethrin (ISO)	52645-53-1 258-067-9 613-058-00-2	Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10,000 M-Factor (Chronic aquatic toxicity): 10,000	11.76
4-Nonylphenol, branched, ethoxylated	127087-87-0	Repr. 2; H361 Aquatic Chronic 2; H411	8.4
Calcium bis(dodecylbenzenesulphonate), branched	70528-83-5 274-654-2	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318	2.52

For explanation of abbreviations see section 16.

## 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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

---

- 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.  
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
If easy to do, remove contact lens, if worn.  
Get medical attention.
- If swallowed : If swallowed, DO NOT induce vomiting.  
If vomiting occurs have person lean forward.  
Call a physician or poison control centre immediately.  
Rinse mouth thoroughly with water.  
Never give anything by mouth to an unconscious person.

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

- Risks : May be fatal if swallowed and enters airways.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye irritation.  
May cause drowsiness or dizziness.  
May cause genetic defects.  
May cause cancer.  
Suspected of damaging fertility or the unborn child.  
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.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : High volume water jet

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

---

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

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Chlorine compounds  
Carbon oxides  
Sulphur oxides  
Metal oxides

### 5.3 Advice for firefighters

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

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.

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## SECTION 6: Accidental release measures

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

Personal precautions : Remove all sources of ignition.  
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 : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapours/mists with a water spray jet.  
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 absor-

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

---

bent.  
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.

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## 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 | : | If sufficient ventilation is unavailable, use with local exhaust ventilation.<br>Use explosion-proof electrical, ventilating and lighting equipment.  |
| Advice on safe handling | : | Do not get on skin or clothing.<br>Do not breathe mist or vapours.<br>Do not swallow.<br>Do not get in eyes.<br>Wash skin thoroughly after handling.<br>Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment<br>Non-sparking tools should be used.<br>Keep container tightly closed.<br>Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.<br>Take precautionary measures against static discharges.<br>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. Contaminated work clothing should not be allowed out of the workplace.<br>Wash contaminated clothing before re-use.  |

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

- |   |   |   |
|---|---|---|
| Requirements for storage areas and containers | : | Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition. |
| Advice on common storage                      | : | Do not store with the following product types:<br>Strong oxidizing agents<br>Organic peroxides<br>Flammable solids<br>Pyrophoric liquids<br>Pyrophoric solids   |

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

Self-heating substances and mixtures  
Substances and mixtures, which in contact with water, emit flammable gases  
Explosives  
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
Xylene	1330-20-7	TWA	50 ppm 221 mg/m <sup>3</sup>	2000/39/EC
		Further information: Identifies the possibility of significant uptake through the skin, Indicative		
		STEL	100 ppm 442 mg/m <sup>3</sup>	2000/39/EC
		Further information: Identifies the possibility of significant uptake through the skin, Indicative		
		TWA	50 ppm 220 mg/m <sup>3</sup>	GB EH40
		Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
		STEL	100 ppm 441 mg/m <sup>3</sup>	GB EH40
		Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.		
Permethrin (ISO)	52645-53-1	TWA	80 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	800 µg/100 cm <sup>2</sup>	Internal

#### Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Xylene	1330-20-7	methyl hippuric acid: 650 Millimoles per mole Creatinine (Urine)	After shift	GB EH40 BAT

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Xylene	Workers	Inhalation	Long-term systemic effects	221 mg/m <sup>3</sup>

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

	Workers	Inhalation	Acute systemic effects	442 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	221 mg/m <sup>3</sup>
	Workers	Inhalation	Acute local effects	442 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	212 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	65.3 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute systemic effects	260 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	65.3 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute local effects	260 mg/m <sup>3</sup>
	Consumers	Skin contact	Long-term systemic effects	125 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	12.5 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Xylene	Fresh water	0.327 mg/l
	Intermittent use/release	0.327 mg/l
	Marine water	0.327 mg/l
	Sewage treatment plant	6.58 mg/l
	Fresh water sediment	12.46 mg/kg dry weight (d.w.)
	Marine sediment	12.46 mg/kg dry weight (d.w.)
	Soil	2.31 mg/kg dry weight (d.w.)

## 8.2 Exposure controls

### Engineering measures

Minimize workplace exposure concentrations.  
If sufficient ventilation is unavailable, use with local exhaust ventilation.  
Use explosion-proof electrical, ventilating and lighting equipment.

### Personal protective equipment

Eye protection : Wear the following personal protective equipment:  
Safety goggles  
Equipment should conform to BS EN 166

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable,



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.  
Wear the following personal protective equipment:  
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.  
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.  
Equipment should conform to BS EN 14387

Filter type : Combined particulates and organic vapour type (A-P)

### SECTION 9: Physical and chemical properties

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

Appearance	: liquid
Colour	: clear
Odour	: aromatic
Odour Threshold	: No data available
pH	: 6.69
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: No data available
Flash point	: 51.1 °C
Evaporation rate	: No data available
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
Vapour pressure	: 15 mmHg (25 °C)
Relative vapour density	: No data available
Relative density	: 0.870 - 0.880 (25 °C)
Density	: No data available

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

---

Solubility(ies)  
Water solubility : emulsifiable  
Partition coefficient: n-octanol/water : Not applicable  
Auto-ignition temperature : No data available  
  
Decomposition temperature : No data available  
  
Viscosity  
Viscosity, dynamic : No data available  
Viscosity, kinematic : No data available  
  
Explosive properties : Not explosive  
  
Oxidizing properties : The substance or mixture is not classified as oxidizing.

### 9.2 Other information

Molecular weight : No data available  
Particle size : Not applicable

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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 : Flammable liquid and vapour.  
Vapours may form explosive mixture with air.  
Can react with strong oxidizing agents.

### 10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

### 10.5 Incompatible materials

Materials to avoid : Oxidizing agents

### 10.6 Hazardous decomposition products

No hazardous decomposition products are known.

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation  
Skin contact  
Ingestion

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Eye contact

### Acute toxicity

Not classified based on available information.

### Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg  
Method: Calculation method

### Components:

#### **Solvent naphtha (petroleum), light aromatic:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.61 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

#### **Xylene:**

Acute oral toxicity : LD50 (Rat): 3,523 mg/kg  
Method: Directive 67/548/EEC, Annex V, B.1.

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: Expert judgement  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : Acute toxicity estimate: 1,100 mg/kg  
Method: Expert judgement  
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

#### **Permethrin (ISO):**

Acute oral toxicity : LD50 (Rat): 480 - 554 mg/kg

Acute inhalation toxicity : LC50 (Rat): 2.3 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

### **4-Nonylphenol, branched, ethoxylated:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

### **Calcium bis(dodecylbenzenesulphonate), branched:**

Acute oral toxicity : LD50 (Rat): 404 - 1,980 mg/kg  
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Remarks: Based on data from similar materials

### **Skin corrosion/irritation**

Causes skin irritation.

### **Components:**

#### **Solvent naphtha (petroleum), light aromatic:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation

#### **Xylene:**

Species : Rabbit  
Result : Skin irritation

#### **Permethrin (ISO):**

Species : Rabbit  
Result : No skin irritation

### **4-Nonylphenol, branched, ethoxylated:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation  
Remarks : Based on data from similar materials

### **Calcium bis(dodecylbenzenesulphonate), branched:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : Skin irritation  
Remarks : Based on data from similar materials

### **Serious eye damage/eye irritation**

Causes serious eye irritation.

### **Components:**

#### **Solvent naphtha (petroleum), light aromatic:**

Species : Rabbit  
Method : OECD Test Guideline 405

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Result : No eye irritation

### **Xylene:**

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

### **Permethrin (ISO):**

Species : Rabbit  
Result : No eye irritation

### **4-Nonylphenol, branched, ethoxylated:**

Species : Rabbit  
Method : OECD Test Guideline 405  
Result : No eye irritation  
Remarks : Based on data from similar materials

### **Calcium bis(dodecylbenzenesulphonate), branched:**

Species : Rat  
Method : OECD Test Guideline 405  
Result : Irreversible effects on the eye  
Remarks : Based on data from similar materials

### **Respiratory or skin sensitisation**

#### **Skin sensitisation**

May cause an allergic skin reaction.

#### **Respiratory sensitisation**

Not classified based on available information.

### **Components:**

#### **Solvent naphtha (petroleum), light aromatic:**

Test Type : Buehler Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Result : negative

### **Xylene:**

Test Type : Local lymph node assay (LLNA)  
Exposure routes : Skin contact  
Species : Mouse  
Result : negative

### **Permethrin (ISO):**

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Assessment : Probability or evidence of skin sensitisation in humans

### **4-Nonylphenol, branched, ethoxylated:**

Test Type : Maximisation Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Result : negative  
Remarks : Based on data from similar materials

### **Calcium bis(dodecylbenzenesulphonate), branched:**

Test Type : Maximisation Test  
Exposure routes : Skin contact  
Species : Guinea pig  
Result : negative  
Remarks : Based on data from similar materials

### **Germ cell mutagenicity**

May cause genetic defects.

### **Components:**

#### **Solvent naphtha (petroleum), light aromatic:**

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

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

Genotoxicity in vivo : Test Type: Sister chromatid exchange analysis in spermatogonia  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: positive

Germ cell mutagenicity- Assessment : Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

#### **Xylene:**

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

Test Type: Chromosome aberration test in vitro  
Result: negative

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

Test Type: In vitro sister chromatid exchange assay in mammalian cells  
Result: negative

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Species: Mouse  
Application Route: Skin contact  
Result: negative

### Permethrin (ISO):

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

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
Result: negative

Test Type: Chromosome aberration test in vitro  
Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Result: negative

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

Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Species: Mouse  
Result: negative

Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: Intraperitoneal injection  
Result: negative

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

Germ cell mutagenicity- Assessment : Weight of evidence does not support classification as a germ cell mutagen.

### 4-Nonylphenol, branched, ethoxylated:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

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Method: OECD Test Guideline 471  
Result: negative  
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative  
Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative  
Remarks: Based on data from similar materials

### **Calcium bis(dodecylbenzenesulphonate), branched:**

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: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
Result: negative  
Remarks: Based on data from similar materials

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

### **Carcinogenicity**

May cause cancer.

### **Components:**

#### **Solvent naphtha (petroleum), light aromatic:**

Species : Mouse  
Application Route : Skin contact  
Exposure time : 2 Years  
Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

#### **Xylene:**

Species : Rat  
Application Route : Ingestion  
Exposure time : 103 weeks  
Result : negative



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

### Permethrin (ISO):

Species : Rat  
Result : negative

Species : Mouse  
Result : negative

### Reproductive toxicity

Suspected of damaging fertility or the unborn child.

### Components:

#### **Solvent naphtha (petroleum), light aromatic:**

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

#### **Xylene:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

#### **Permethrin (ISO):**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat  
Application Route: Ingestion  
Result: negative

#### **4-Nonylphenol, branched, ethoxylated:**

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

---

### **Calcium bis(dodecylbenzenesulphonate), branched:**

Effects on fertility : Test Type: Three-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

Effects on foetal development : 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

### **STOT - single exposure**

May cause drowsiness or dizziness.

#### **Components:**

### **Solvent naphtha (petroleum), light aromatic:**

Assessment : May cause drowsiness or dizziness.

### **Xylene:**

Assessment : May cause respiratory irritation.

### **STOT - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

#### **Components:**

### **Xylene:**

Exposure routes : inhalation (vapour)  
Target Organs : Auditory system  
Assessment : Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

### **Repeated dose toxicity**

#### **Components:**

### **Solvent naphtha (petroleum), light aromatic:**

Species : Rat  
LOAEL : 500 mg/kg  
Application Route : Ingestion  
Exposure time : 28 Days

### **Xylene:**

Species : Rat  
LOAEL : > 0.2 - 1 mg/l  
Application Route : inhalation (vapour)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Exposure time : 13 Weeks  
Remarks : Based on data from similar materials

Species : Rat  
LOAEL : 150 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

### Permethrin (ISO):

Species : Rat  
NOAEL : 0.2201 mg/l  
Application Route : Inhalation  
Exposure time : 90 Days

Species : Rat  
NOAEL : 175 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

### 4-Nonylphenol, branched, ethoxylated:

Species : Rat  
LOAEL : 150 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days  
Method : OPPTS 870.3100  
Remarks : Based on data from similar materials

### Aspiration toxicity

May be fatal if swallowed and enters airways.

### Components:

#### Solvent naphtha (petroleum), light aromatic:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be re-garded as if it causes a human aspiration toxicity hazard.

#### Xylene:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be re-garded as if it causes a human aspiration toxicity hazard.

---

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

#### Solvent naphtha (petroleum), light aromatic:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 8.2 mg/l  
Exposure time: 96 h  
Test substance: Water Accommodated Fraction

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

- Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 4.5 mg/l  
Exposure time: 48 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l  
Exposure time: 96 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201
- NOELR (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l  
Exposure time: 96 h  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 201
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR: 2.6 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test substance: Water Accommodated Fraction  
Method: OECD Test Guideline 211
- Xylene:**
- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 24 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials
- Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 10 mg/l  
Exposure time: 72 h
- Toxicity to microorganisms : NOEC : > 100 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209  
Remarks: Based on data from similar materials
- Toxicity to fish (Chronic toxicity) : NOEC: > 0.1 - < 1 mg/l  
Exposure time: 35 d  
Species: Danio rerio (zebra fish)  
Method: OECD Test Guideline 210  
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EL10: > 1 - 10 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211  
Remarks: Based on data from similar materials

### Permethrin (ISO):

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

- Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00079 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.0001 mg/l  
Exposure time: 48 h
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.13 mg/l  
Exposure time: 72 h
- EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0023 mg/l  
Exposure time: 72 h
- M-Factor (Acute aquatic toxicity) : 10,000
- Toxicity to microorganisms : EC50 : > 1,000 mg/l  
Exposure time: 3 h
- Toxicity to fish (Chronic toxicity) : NOEC: 0.00041 mg/l  
Exposure time: 35 d  
Species: Danio rerio (zebra fish)  
Method: OECD Test Guideline 210
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.0047 µg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211
- M-Factor (Chronic aquatic toxicity) : 10,000

### **4-Nonylphenol, branched, ethoxylated:**

- Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 8.2 mg/l  
Exposure time: 96 h

### **Calcium bis(dodecylbenzenesulphonate), branched:**

- Toxicity to fish : LC50 : > 1 - 10 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 62 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials
- NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

---

Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

### 12.2 Persistence and degradability

#### Components:

##### **Solvent naphtha (petroleum), light aromatic:**

Biodegradability : Result: Inherently biodegradable.  
Biodegradation: 94 %  
Exposure time: 25 d

##### **Xylene:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: > 70 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F  
Remarks: Based on data from similar materials

##### **Permethrin (ISO):**

Biodegradability : Result: Not readily biodegradable.  
Method: OECD Test Guideline 301F

##### **4-Nonylphenol, branched, ethoxylated:**

Biodegradability : Result: Not readily biodegradable.

##### **Calcium bis(dodecylbenzenesulphonate), branched:**

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

### 12.3 Bioaccumulative potential

#### Components:

##### **Xylene:**

Partition coefficient: n-octanol/water : log Pow: 3.16  
Remarks: Calculation

##### **Permethrin (ISO):**

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)  
Bioconcentration factor (BCF): 570

Partition coefficient: n-octanol/water : log Pow: 4.67

##### **4-Nonylphenol, branched, ethoxylated:**

Bioaccumulation : Species: Fish  
Bioconcentration factor (BCF): < 100  
Remarks: Based on data from similar materials

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

### **Calcium bis(dodecylbenzenesulphonate), branched:**

Partition coefficient: n-octanol/water : Remarks: Not applicable

### **12.4 Mobility in soil**

No data available

### **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 Other adverse effects**

#### **Product:**

Endocrine disrupting potential : This substance/mixture contains components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

#### **Components:**

#### **4-Nonylphenol, branched, ethoxylated:**

Endocrine disrupting potential : The substance is considered to have endocrine disrupting properties according to REACH Article 57(f) for the environment.

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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.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

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## **SECTION 14: Transport information**

### **14.1 UN number**

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

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**ADN** : UN 1993  
**ADR** : UN 1993  
**RID** : UN 1993  
**IMDG** : UN 1993  
**IATA** : UN 1993

### 14.2 UN proper shipping name

**ADN** : FLAMMABLE LIQUID, N.O.S.  
(Solvent naphtha (petroleum), light aromatic, Xylene)  
**ADR** : FLAMMABLE LIQUID, N.O.S.  
(Solvent naphtha (petroleum), light aromatic, Xylene)  
**RID** : FLAMMABLE LIQUID, N.O.S.  
(Solvent naphtha (petroleum), light aromatic, Xylene)  
**IMDG** : FLAMMABLE LIQUID, N.O.S.  
(Solvent naphtha (petroleum), light aromatic, Xylene, Permethrin (ISO))  
**IATA** : Flammable liquid, n.o.s.  
(Solvent naphtha (petroleum), light aromatic, Xylene)

### 14.3 Transport hazard class(es)

**ADN** : 3  
**ADR** : 3  
**RID** : 3  
**IMDG** : 3  
**IATA** : 3

### 14.4 Packing group

**ADN**  
Packing group : III  
Classification Code : F1  
Hazard Identification Number : 30  
Labels : 3  
**ADR**  
Packing group : III  
Classification Code : F1  
Hazard Identification Number : 30  
Labels : 3  
Tunnel restriction code : (D/E)  
**RID**  
Packing group : III  
Classification Code : F1  
Hazard Identification Number : 30  
Labels : 3  
**IMDG**  
Packing group : III



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Labels : 3  
EmS Code : F-E, S-E

### IATA (Cargo)

Packing instruction (cargo aircraft) : 366  
Packing instruction (LQ) : Y344  
Packing group : III  
Labels : Flammable Liquids

### IATA (Passenger)

Packing instruction (passenger aircraft) : 355  
Packing instruction (LQ) : Y344  
Packing group : III  
Labels : Flammable Liquids

## 14.5 Environmental hazards

### ADN

Environmentally hazardous : yes

### ADR

Environmentally hazardous : yes

### RID

Environmentally hazardous : yes

### IMDG

Marine pollutant : 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 Transport in bulk according to Annex II of Marpol and the IBC Code

Remarks : Not applicable for product as supplied.

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## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:  
Number on list 3  
4-Nonylphenol, branched, ethoxylated (Number on list 46b, 46a.)  
Solvent naphtha (petroleum), light aromatic (Number on list 29, 28)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : 4-Nonylphenol, branched, ethoxylated

REACH - List of substances subject to authorisation (Annex XIV) : 4-Nonylphenol, branched, ethoxylated

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

---

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable  
Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable  
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Permethrin (ISO)  
4-Nonylphenol, branched, ethoxylated

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

		Quantity 1	Quantity 2
E1	ENVIRONMENTAL HAZARDS	100 t	200 t
P5c	FLAMMABLE LIQUIDS	5,000 t	50,000 t
34	Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams), (d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)	2,500 t	25,000 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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

### Full text of H-Statements

H226 : Flammable liquid and vapour.  
H302 : Harmful if swallowed.  
H304 : May be fatal if swallowed and enters airways.  
H312 : Harmful 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.  
H332 : Harmful if inhaled.  
H335 : May cause respiratory irritation.  
H336 : May cause drowsiness or dizziness.  
H340 : May cause genetic defects.  
H350 : May cause cancer.  
H361 : Suspected of damaging fertility or the unborn child.  
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.  
H412 : Harmful to aquatic life with long lasting effects.

### Full text of other abbreviations

Acute Tox. : Acute toxicity  
Aquatic Acute : Short-term (acute) aquatic hazard  
Aquatic Chronic : Long-term (chronic) aquatic hazard  
Asp. Tox. : Aspiration hazard  
Carc. : Carcinogenicity  
Eye Dam. : Serious eye damage  
Eye Irrit. : Eye irritation  
Flam. Liq. : Flammable liquids  
Muta. : Germ cell mutagenicity  
Repr. : Reproductive toxicity  
Skin Irrit. : Skin irritation  
Skin Sens. : Skin sensitisation  
STOT RE : Specific target organ toxicity - repeated exposure  
STOT SE : Specific target organ toxicity - single exposure  
2000/39/EC : Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values  
  
GB EH40 : UK. EH40 WEL - Workplace Exposure Limits  
GB EH40 BAT : UK. Biological monitoring guidance values  
2000/39/EC / TWA : Limit Value - eight hours  
2000/39/EC / STEL : Short term exposure limit  
GB EH40 / TWA : Long-term exposure limit (8-hour TWA reference period)  
GB EH40 / STEL : Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - 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 -

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version 3.5      Revision Date: 17.03.2021      SDS Number: 835386-00011      Date of last issue: 10.10.2020  
Date of first issue: 02.08.2016

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; 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:

Flam. Liq. 3	H226
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Skin Sens. 1	H317
Muta. 1B	H340
Carc. 1B	H350
Repr. 2	H361
STOT SE 3	H336
STOT RE 2	H373
Asp. Tox. 1	H304
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

### Classification procedure:

Based on product data or assessment  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method  
Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## Permethrin Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 10.10.2020
3.5	17.03.2021	835386-00011	Date of first issue: 02.08.2016

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Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

GB / EN