

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Trade name : Flumethrin (1%) Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised againstUse of the Sub-
stance/Mixture : Veterinary productRecommended restrictions
on use : Not applicable**1.3 Details of the supplier of the safety data sheet**Company : MSD
20 Spartan Road
1619 Spartan, South Africa

Telephone : +27119239300

E-mail address of person
responsible for the SDS : EHSDATASTEWARD@msd.com**1.4 Emergency telephone number**

+1-908-423-6000

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.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Acute toxicity, Category 3	H311: Toxic in contact with skin.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Reproductive toxicity, Category 1B	H360D: May damage the unborn child.
Specific target organ toxicity - single exposure, Category 2	H371: May cause damage to organs.
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.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)**

Flumethrin (1%) Formulation

Version 7.1 Revision Date: 17.06.2025 SDS Number: 4019097-00020 Date of last issue: 14.04.2025
 Date of first issue: 25.02.2019

Hazard pictograms :



Signal word : Danger

Hazard statements :

- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H360D May damage the unborn child.
- H371 May cause damage to organs.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H412 Harmful 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.
 P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.

Hazardous components which must be listed on the label:

Paraffin oil
 Xylene
 Flumethrin

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**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)

Flumethrin (1%) Formulation

Version 7.1 Revision Date: 17.06.2025 SDS Number: 4019097-00020 Date of last issue: 14.04.2025
 Date of first issue: 25.02.2019

Paraffin oil	8012-95-1 232-384-2	Asp. Tox. 1; H304 Aquatic Chronic 4; H413	$\geq 50 - < 70$
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	$\geq 10 - < 20$
Flumethrin	69770-45-2 274-110-4	Acute Tox. 2; H300 Acute Tox. 1; H310 Eye Irrit. 2; H319 Repr. 1B; H360D STOT SE 1; H370 STOT RE 1; H372 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1	$\geq 1 - < 2,5$
Toluene	108-88-3 203-625-9 601-021-00-3	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Repr. 2; H361d STOT SE 3; H336 STOT RE 2; H373 (Central nervous system) Asp. Tox. 1; H304 Aquatic Chronic 3; H412	$\geq 0,25 - < 1$

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.
- 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.

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

- | | | |
|-------------------------|---|---|
| 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 | : | Harmful if swallowed.
May be fatal if swallowed and enters airways.
Toxic in contact with skin.
Causes skin irritation.
Causes serious eye irritation.
May damage the unborn child.
May cause damage to organs.
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
Alcohol-resistant foam
Carbon dioxide (CO ₂)
Dry chemical |
| Unsuitable extinguishing media | : | High volume water jet |

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. |
|---------------------------------------|---|--|

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Hazardous combustion products : Carbon 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.

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 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.

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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.
Use explosion-proof electrical, ventilating and lighting equipment. |
| Advice on safe handling | : | Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Non-sparking tools should be used.
Keep container tightly closed.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
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. 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:
Strong oxidizing agents
Self-reactive substances and mixtures
Organic peroxides
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures, which in contact with water, emit flammable gases
Explosives
Gases
Very acutely toxic substances and mixtures |

Flumethrin (1%) Formulation

Version 7.1 Revision Date: 17.06.2025 SDS Number: 4019097-00020 Date of last issue: 14.04.2025
 Date of first issue: 25.02.2019

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	OEL-RL	200 ppm	ZA OEL
Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents				
		OEL- RL STEL/C	300 ppm	ZA OEL
Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents				
		TWA	50 ppm 221 mg/m ³	2000/39/EC
		STEL	100 ppm 442 mg/m ³	2000/39/EC
Flumethrin	69770-45-2	TWA	30 µg/m ³ (OEB 3)	Internal
Further information: Skin				
		Wipe limit	300 µg/100 cm ²	Internal
Toluene	108-88-3	OEL-RL	40 ppm	ZA OEL
Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents				
		TWA	50 ppm 192 mg/m ³	2006/15/EC
		STEL	100 ppm 384 mg/m ³	2006/15/EC

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
Xylene	1330-20-7	Methylhippuric acids: 1.5 g/g creatinine (Urine)	End of shift	ZA BEI
Toluene	108-88-3	Toluene: 0,02 mg/l (Blood)	Prior to last shift of workweek	ZA BEI
		Toluene: 0,03 mg/l (Urine)	End of shift	ZA BEI
		o-Cresol: 0.3 mg/g creatinine (Urine)	End of shift	ZA BEI

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 ³

Flumethrin (1%) Formulation

Version 7.1 Revision Date: 17.06.2025 SDS Number: 4019097-00020 Date of last issue: 14.04.2025
 Date of first issue: 25.02.2019

	Workers	Inhalation	Acute systemic effects	442 mg/m ³
	Workers	Inhalation	Long-term local effects	221 mg/m ³
	Workers	Inhalation	Acute local effects	442 mg/m ³
	Workers	Skin contact	Long-term systemic effects	212 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	65,3 mg/m ³
	Consumers	Inhalation	Acute systemic effects	260 mg/m ³
	Consumers	Inhalation	Long-term local effects	65,3 mg/m ³
	Consumers	Inhalation	Acute local effects	260 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	125 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	12,5 mg/kg bw/day
Glycerides, mixed decanoyl and octanoyl	Workers	Inhalation	Long-term systemic effects	177,79 mg/m ³
	Workers	Skin contact	Long-term systemic effects	25,21 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	43,84 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	12,61 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	12,61 mg/kg bw/day
Paraffin oil	Workers	Inhalation	Long-term systemic effects	5 mg/m ³
	Workers	Inhalation	Acute systemic effects	5 mg/m ³
	Workers	Inhalation	Long-term local effects	5 mg/m ³
	Workers	Inhalation	Acute local effects	5 mg/m ³
Toluene	Workers	Inhalation	Acute systemic effects	384 mg/m ³
	Workers	Inhalation	Acute local effects	384 mg/m ³
	Workers	Skin contact	Long-term systemic effects	384 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	192 mg/m ³
	Workers	Inhalation	Long-term local effects	192 mg/m ³
	Consumers	Inhalation	Acute systemic effects	226 mg/m ³
	Consumers	Inhalation	Acute local effects	226 mg/m ³
	Consumers	Skin contact	Long-term systemic effects	226 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	56,5 mg/m ³
	Consumers	Ingestion	Long-term systemic effects	8,13 mg/kg bw/day

Flumethrin (1%) Formulation

Version 7.1 Revision Date: 17.06.2025 SDS Number: 4019097-00020 Date of last issue: 14.04.2025
 Date of first issue: 25.02.2019

	Consumers	Inhalation	Long-term local effects	56,5 mg/m3
--	-----------	------------	-------------------------	------------

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.)
Glycerides, mixed decanoyl and octanoyl	Oral (Secondary Poisoning)	0,03 mg/kg food
Toluene	Fresh water	0,68 mg/l
	Marine water	0,68 mg/l
	Intermittent use/release	0,68 mg/l
	Sewage treatment plant	13,61 mg/l
	Fresh water sediment	16,39 mg/kg dry weight (d.w.)
	Marine sediment	16,39 mg/kg dry weight (d.w.)
	Soil	2,89 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.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

Minimize open handling.

Use explosion-proof electrical, ventilating and lighting equipment.

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

Remarks : Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

Skin and body protection : Work uniform or laboratory coat.

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
Use appropriate degowning techniques to remove potentially contaminated clothing.

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

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	: Aqueous solution
Colour	: light brown, yellow
Odour	: No data available
Odour Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: No data available
Flash point	: 54 °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	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Density	: 0,820 - 0,900 g/cm ³
Solubility(ies)	
Water solubility	: No data available
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Viscosity
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

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.

SECTION 11: Toxicological information**11.1 Information on toxicological effects**

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

Acute toxicity

Harmful if swallowed.
Toxic in contact with skin.

Product:

Acute oral toxicity : Acute toxicity estimate: 410,05 mg/kg
Method: Calculation method

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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: 393,03 mg/kg
Method: Calculation method

Components:**Paraffin oil:**

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

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 national or regional regulation.

Acute dermal toxicity : Acute toxicity estimate: 1.100 mg/kg
Method: Expert judgement
Remarks: Based on national or regional regulation.

Flumethrin:

Acute oral toxicity : LD50 (Rat): > 20 mg/kg
LD50 (Mouse): > 20 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 2.934 mg/l

Acute dermal toxicity : LD50 (Rat): > 5 mg/kg

Toluene:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): 28,1 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Components:**Paraffin oil:**

Species	:	Rabbit
Result	:	No skin irritation

Xylene:

Species	:	Rabbit
Result	:	Skin irritation

Flumethrin:

Result	:	No skin irritation
--------	---	--------------------

Toluene:

Species	:	Rabbit
Method	:	Directive 67/548/EEC, Annex V, B.4.
Result	:	Skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:**Paraffin oil:**

Species	:	Rabbit
Result	:	No eye irritation

Xylene:

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

Flumethrin:

Result	:	Mild eye irritation
--------	---	---------------------

Toluene:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation

Respiratory or skin sensitisation**Skin sensitisation**

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:**Xylene:**

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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

Toluene:

Test Type	:	Maximisation Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	Directive 67/548/EEC, Annex V, B.6.
Result	:	negative

Germ cell mutagenicity

Not classified based on available information.

Components:**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

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

Flumethrin:

Genotoxicity in vitro	:	Test Type: Microbial mutagenesis assay (Ames test) Test system: Salmonella typhimurium Result: equivocal
-----------------------	---	--

Test Type: Chromosomal aberration
Test system: Chinese hamster ovary cells
Result: positive
Remarks: Not classified due to inconclusive data.

Test Type: Chromosomal aberration
Test system: Human lymphocytes
Result: negative

Test Type: in vitro micronucleus test
Test system: Mouse
Result: negative

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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

Toluene:

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

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

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: Intraperitoneal injection
Result: negative

Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: inhalation (vapour)
Method: OECD Test Guideline 478
Result: negative

Carcinogenicity

Not classified based on available information.

Components:**Xylene:**

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

Flumethrin:

Species : Rat
Application Route : Oral
Exposure time : 2 Years
NOAEL : 0,5 mg/kg body weight
Result : negative

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

Toluene:

Species : Rat
Application Route : inhalation (vapour)
Exposure time : 103 weeks
Result : negative

Species : Mouse
Application Route : Skin contact

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Exposure time : 24 Months
Result : negative

Reproductive toxicity

May damage the unborn child.

Components:**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

Flumethrin:

Effects on foetal development : Test Type: Development
Species: Rat
Application Route: Oral
Developmental Toxicity: NOAEL: 0,36 mg/kg body weight
Result: Maternal toxicity observed., Reduced offspring weight gain, foetal abnormalities

Test Type: Development
Species: Rat
Application Route: Oral
Developmental Toxicity: NOAEL: 0,5 mg/kg body weight
Result: Maternal toxicity observed., Skeletal malformations, Reduced foetal weight

Test Type: Development
Species: Rabbit
Application Route: Oral
Developmental Toxicity: NOAEL: 1,7 mg/kg body weight
Result: No teratogenic potential

Reproductive toxicity - Assessment : May damage the unborn child.

Toluene:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Method: OECD Test Guideline 416
Result: negative

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

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

May cause damage to organs.

Components:**Xylene:**

Assessment : May cause respiratory irritation.

Flumethrin:

Exposure routes : Oral
Assessment : Causes damage to organs.

Toluene:

Assessment : May cause drowsiness or dizziness.

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.

Flumethrin:

Exposure routes : Oral
Assessment : Causes damage to organs through prolonged or repeated exposure.

Toluene:

Exposure routes : Inhalation
Target Organs : Central nervous system
Assessment : May cause damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Components:****Paraffin oil:**

Species : Rat, female
LOAEL : 161 mg/kg
Application Route : Ingestion
Exposure time : 90 Days

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Xylene:

Species	: Rat
LOAEL	: > 0,2 - 1 mg/l
Application Route	: inhalation (vapour)
Exposure time	: 13 Weeks
Remarks	: Based on data from similar materials

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

Flumethrin:

Species	: Rat
NOAEL	: 0,7 mg/kg
Application Route	: Oral
Exposure time	: 13 Weeks
Target Organs	: digestive system, Skin
Symptoms	: decrease in appetite, Skin disorders

Species	: Dog
NOAEL	: 0,88 mg/kg
Application Route	: Oral
Exposure time	: 13 Weeks
Target Organs	: digestive system, Hair, Skin
Symptoms	: decrease in appetite, Skin disorders

Toluene:

Species	: Rat
LOAEL	: 1,875 mg/l
Application Route	: inhalation (vapour)
Exposure time	: 6 Months

Species	: Rat
NOAEL	: 625 mg/kg
Application Route	: Ingestion
Exposure time	: 13 Weeks

Aspiration toxicity

May be fatal if swallowed and enters airways.

Components:**Paraffin oil:**

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

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Toluene:

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

Experience with human exposure**Components:****Toluene:**

Inhalation : Target Organs: Central nervous system
Symptoms: Neurological disorders

SECTION 12: Ecological information**12.1 Toxicity****Components:****Paraffin oil:**

Toxicity to fish	:	LL50 (Scophthalmus maximus (turbot)): > 100 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Acartia tonsa (Calanoid copepod)): > 100 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EL50 (Skeletonema costatum (marine diatom)): > 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
	:	NOELR (Skeletonema costatum (marine diatom)): > 1 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials

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

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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

Flumethrin:

Toxicity to fish (Chronic toxicity) : NOEC: 0,046 mg/l
Exposure time: 144 h
Species: Danio rerio (zebra fish)

M-Factor (Chronic aquatic toxicity) : 1

Toluene:

Toxicity to fish : LC50 (Oncorhynchus kisutch (coho salmon)): 5,5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 3,78 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOEC (Skeletonema costatum (marine diatom)): 10 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC50 (Nitrosomonas sp.): 84 mg/l
Exposure time: 24 h

Toxicity to fish (Chronic toxicity) : NOEC: 1,39 mg/l
Exposure time: 40 d
Species: Oncorhynchus kisutch (coho salmon)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,74 mg/l
Exposure time: 7 d
Species: Ceriodaphnia dubia (water flea)

12.2 Persistence and degradability

Components:

Xylene:

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

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Toluene:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 80 %
Exposure time: 20 d

12.3 Bioaccumulative potential**Components:****Paraffin oil:**

Partition coefficient: n-octanol/water : log Pow: > 4
Remarks: Calculation

Xylene:

Partition coefficient: n-octanol/water : log Pow: 3,16
Remarks: Calculation

Flumethrin:

Partition coefficient: n-octanol/water : log Pow: 6,2

Toluene:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 90

Partition coefficient: n-octanol/water : log Pow: 2,73

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 : 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.

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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.
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. |

SECTION 14: Transport information**14.1 UN number**

- | | | |
|------|---|---------|
| ADN | : | UN 1992 |
| ADR | : | UN 1992 |
| RID | : | UN 1992 |
| IMDG | : | UN 1992 |
| IATA | : | UN 1992 |

14.2 UN proper shipping name

- | | | |
|------|---|---|
| ADN | : | FLAMMABLE LIQUID, TOXIC, N.O.S.
(Xylene, Flumethrin) |
| ADR | : | FLAMMABLE LIQUID, TOXIC, N.O.S.
(Xylene, Flumethrin) |
| RID | : | FLAMMABLE LIQUID, TOXIC, N.O.S.
(Xylene, Flumethrin) |
| IMDG | : | FLAMMABLE LIQUID, TOXIC, N.O.S.
(Xylene, Flumethrin) |
| IATA | : | Flammable liquid, toxic, n.o.s.
(Xylene, Flumethrin) |

14.3 Transport hazard class(es)

- | | Class | Subsidiary risks |
|------|-------|------------------|
| ADN | : 3 | 6.1 |
| ADR | : 3 | 6.1 |
| RID | : 3 | 6.1 |
| IMDG | : 3 | 6.1 |
| IATA | : 3 | 6.1 |

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

14.4 Packing group**ADN**

Packing group	: III
Classification Code	: FT1
Hazard Identification Number	: 36
Labels	: 3 (6.1)

ADR

Packing group	: III
Classification Code	: FT1
Hazard Identification Number	: 36
Labels	: 3 (6.1)
Tunnel restriction code	: (D/E)

RID

Packing group	: III
Classification Code	: FT1
Hazard Identification Number	: 36
Labels	: 3 (6.1)

IMDG

Packing group	: III
Labels	: 3 (6.1)
EmS Code	: F-E, S-D

IATA (Cargo)

Packing instruction (cargo aircraft)	: 366
Packing instruction (LQ)	: Y343
Packing group	: III
Labels	: Flammable Liquids, Toxic

IATA (Passenger)

Packing instruction (passenger aircraft)	: 355
Packing instruction (LQ)	: Y343
Packing group	: III
Labels	: Flammable Liquids, Toxic

14.5 Environmental hazards**ADN**

Environmentally hazardous	: no
---------------------------	------

ADR

Environmentally hazardous	: no
---------------------------	------

RID

Environmentally hazardous	: no
---------------------------	------

IMDG

Marine pollutant	: no
------------------	------

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

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

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**

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.

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

H225	: Highly flammable liquid and vapour.
H226	: Flammable liquid and vapour.
H300	: Fatal if swallowed.
H304	: May be fatal if swallowed and enters airways.
H310	: Fatal in contact with skin.
H312	: Harmful in contact with skin.
H315	: Causes skin irritation.
H319	: Causes serious eye irritation.
H332	: Harmful if inhaled.
H335	: May cause respiratory irritation.
H336	: May cause drowsiness or dizziness.
H360D	: May damage the unborn child.
H361d	: Suspected of damaging the unborn child.
H370	: Causes damage to organs if swallowed.
H372	: Causes damage to organs through prolonged or repeated exposure if swallowed.
H373	: May cause damage to organs through prolonged or repeated exposure.
H410	: Very toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.
H413	: May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Asp. Tox.	: Aspiration hazard
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

Repr.	: Reproductive toxicity
Skin Irrit.	: Skin irritation
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
2006/15/EC	: Europe. Indicative occupational exposure limit values
ZA BEI	: South Africa. The Regulations for Hazardous Chemical Agents, Biological Exposure Indices
ZA OEL	: South Africa. The Regulations for Hazardous Chemical Agents, Occupational Exposure Limits
2000/39/EC / TWA	: Limit Value - eight hours
2000/39/EC / STEL	: Short term exposure limit
2006/15/EC / TWA	: Limit Value - eight hours
2006/15/EC / STEL	: Short term exposure limit
ZA OEL / OEL-RL	: Occupational Exposure Limit Restricted limit - 8- hour exposure or equivalent (12 hour shifts)
ZA OEL / OEL- RL STEL/C	: Occupational Exposure Limit Restricted limit - Short term occupational exposure limits / ceiling limits

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - 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 - 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; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to : Internal technical data, data from raw material SDSs, OECD

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
7.1	17.06.2025	4019097-00020	Date of first issue: 25.02.2019

compile the Safety Data Sheet

eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>**Classification of the mixture:**

Flam. Liq. 3	H226
Acute Tox. 4	H302
Acute Tox. 3	H311
Skin Irrit. 2	H315
Eye Irrit. 2	H319
Repr. 1B	H360D
STOT SE 2	H371
STOT RE 2	H373
Asp. Tox. 1	H304
Aquatic Chronic 3	H412

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

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. 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.

ZA / EN