SAFETY DATA SHEET

Flumethrin (1%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.11.2020
5.3	27.08.2021	4019085-00010	Date of first issue: 25.02.2019

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Flumethrin (1%) Formulation

Manufacturer or supplier's details

Company : MSD

Address : Rua Coronel Bento Soares, 530
Cruzeiro - Sao Paulo - Brazil CEP 12730-340

Telephone : 908-740-4000

Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification in accordance with ABNT NBR 14725 Standard

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Dermal) : Category 3

Skin irritation : Category 2

Eye irritation : Category 2A

Reproductive toxicity : Category 1B

Specific target organ toxicity - single exposure (Oral) : Category 2

Specific target organ toxicity - repeated exposure : Category 2 (Auditory system)

Specific target organ toxicity - repeated exposure (Oral) : Category 2

Aspiration hazard : Category 1

Short-term (acute) aquatic hazard : Category 3

Long-term (chronic) aquatic hazard : Category 3

GHS label elements in accordance with ABNT NBR 14725 Standard

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H226 Flammable liquid and vapor.
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 if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.
H373 May cause damage to organs (Auditory system) 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/ sparks/ open flames/ hot surfaces. 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.

Other hazards which do not result in classification

Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Paraffin oil	8012-95-1	Aspiration hazard, Category 1 Long-term (chronic) aquatic hazard, Category 4	>= 50 -< 70
Xylene	1330-20-7	Flammable liquids, Category 3	>= 10 -< 20

		Acute toxicity (Oral), Category 5 Acute toxicity (Inhalation), Category 5 Acute toxicity (Dermal), Category 5 Skin irritation, Category 2 Eye irritation, Category 2A Specific target organ toxicity - single exposure, Category 3 Specific target organ toxicity - repeated exposure (Auditory system), Category 2 Aspiration hazard, Category 1 Short-term (acute) aquatic hazard, Category 2 Long-term (chronic) aquatic hazard, Category 3	
Flumethrin	69770-45-2	Acute toxicity (Oral), Category 2 Acute toxicity (Dermal), Category 1 Eye irritation, Category 2B Reproductive toxicity, Category 1B Specific target organ toxicity - single exposure (Oral), Category 1 Specific target organ toxicity - repeated exposure (Oral), Category 1 Long-term (chronic) aquatic hazard, Category 1	>= 1 -< 2,5
Toluene	108-88-3	Flammable liquids, Category 2 Acute toxicity (Inhalation), Category 5 Skin irritation, Category 2 Reproductive toxicity, Category 2 Specific target organ	>= 0,25 -< 1

		toxicity - single exposure, Category 3 Specific target organ toxicity - repeated exposure (Central nervous system), Category 2 Aspiration hazard, Category 1 Short-term (acute) aquatic hazard, Category 2 Long-term (chronic) aquatic hazard, Category 3	

SECTION 4. 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.
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 center immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed	:	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 if swallowed. May cause damage to organs through prolonged or repeated exposure.
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).
Notes to physician	:	Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	High volume water jet
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. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides
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.
Special protective equipment for fire-fighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
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.
Methods and materials for containment and cleaning up	:	Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked 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.

SECTION 7. HANDLING AND STORAGE

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 vapors. 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.
Conditions for safe storage	:	Keep in properly labeled 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.
Materials to avoid	:	Do not store with the following product types: Strong oxidizing agents 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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parame-ters / Permissible concentration	Basis
Paraffin oil	8012-95-1	TWA (Inhalable particulate matter)	5 mg/m³	ACGIH
Xylene	1330-20-7	LT	78 ppm 340 mg/m³	BR OEL
	Further information: Degree of harmfulness: medium			
		TWA	100 ppm	ACGIH
		STEL	150 ppm	ACGIH
Flumethrin	69770-45-2	TWA	45 µg/m3 (OEB 3)	Internal
	Further information: Skin			
		Wipe limit	450 µg/100 cm²	Internal
Toluene	108-88-3	LT	78 ppm 290 mg/m³	BR OEL
	Further information: Absorption through the skin, Degree of harmfulness: medium			
		TWA	20 ppm	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
Xylene	1330-20-7	methyl hippuric acid	Urine	End of workday	1.5 mg/g Creatinine	BR BEI
		Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Toluene	108-88-3	toluene	Blood	Start of the last working day of the week	0,02 mg/l	BR BEI
		toluene	Urine	End of workday	0,03 mg/l	BR BEI
		ortho-cresol	Urine	End of workday	0.3 mg/g Creatinine	BR BEI
		Toluene	In blood	Prior to last shift of work-	0,02 mg/l	ACGIH BEI

				week		
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0,03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI

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

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 vapor type

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.

Eye 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.

Skin and body protection : Work uniform or laboratory coat.
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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Aqueous solution
Color	:	light brown, yellow
Odor	:	No data available
Odor 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
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	0,820 - 0,900 g/cm³
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	Not applicable
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive

Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available
Particle size	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Flammable liquid and vapor. Vapors may form explosive mixture with air. Can react with strong oxidizing agents.
Conditions to avoid	:	Heat, flames and sparks.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

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: 404,59 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 40 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: 402,36 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	:	LC50 (Rat): 27,571 mg/l Exposure time: 4 h Test atmosphere: vapor
Acute dermal toxicity	:	LD50 (Rabbit): > 4.200 mg/kg

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

Skin corrosion/irritation

Causes skin irritation.

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
Result	:	No eye irritation
Method	:	OECD Test Guideline 405

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

Xylene:

Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Skin contact
Species	:	Mouse
Result	:	negative

Toluene:

Test Type	:	Maximization Test
Routes of exposure	:	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

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 (vapor)
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 (vapor)
Exposure time	:	103 weeks
Result	:	negative
Species	:	Mouse
Application Route	:	Skin contact
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 (vapor) Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: inhalation (vapor) Result: negative

Flumethrin:

Effects on fetal 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., Fetal 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 fetal 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 (vapor)
Method: OECD Test Guideline 416
Result: negative

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

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

STOT-single exposure

May cause damage to organs if swallowed.

Components:

Xylene:

Assessment : May cause respiratory irritation.

Flumethrin:

Routes of exposure : 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 if swallowed.
May cause damage to organs (Auditory system) through prolonged or repeated exposure.

Components:

Xylene:

Routes of exposure	:	inhalation (vapor)
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:

Routes of exposure	:	Oral
Assessment	:	Causes damage to organs through prolonged or repeated exposure.

Toluene:

Routes of exposure	:	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

Xylene:

Species	:	Rat
LOAEL	:	> 0,2 - 1 mg/l
Application Route	:	inhalation (vapor)
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 (vapor)
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.

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

Ecotoxicity

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): > 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 fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): > 0,1 - < 1 mg/l Exposure time: 35 d Method: OECD Test Guideline 210 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	EL10 (Daphnia magna (Water flea)): > 1 - 10 mg/l Exposure time: 21 d Method: OECD Test Guideline 211 Remarks: Based on data from similar materials
Toxicity to microorganisms	:	NOEC: > 100 mg/l Exposure time: 3 h Method: OECD Test Guideline 209 Remarks: Based on data from similar materials

Flumethrin:

Toxicity to fish (Chronic toxicity)	:	NOEC (Danio rerio (zebra fish)): 0,046 mg/l Exposure time: 144 h
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	:	EC50 (Ceriodaphnia dubia (water flea)): 3,78 mg/l

aquatic invertebrates		Exposure time: 48 h
Toxicity to algae/aquatic plants	:	NOEC (Skeletonema costatum (marine diatom)): 10 mg/l Exposure time: 72 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus kisutch (coho salmon)): 1,39 mg/l Exposure time: 40 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Ceriodaphnia dubia (water flea)): 0,74 mg/l Exposure time: 7 d
Toxicity to microorganisms	:	EC50 (Nitrosomonas sp.): 84 mg/l Exposure time: 24 h

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

Toluene:

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

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

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with local regulations.
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

International Regulations

UNRTDG

UN number	:	UN 1992
Proper shipping name	:	FLAMMABLE LIQUID, TOXIC, N.O.S. (Xylene, Flumethrin)
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	III
Labels	:	3 (6.1)

IATA-DGR

UN/ID No.	:	UN 1992
Proper shipping name	:	Flammable liquid, toxic, n.o.s. (Xylene, Flumethrin)
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	III
Labels	:	Flammable Liquids, Toxic
Packing instruction (cargo aircraft)	:	366
Packing instruction (passenger aircraft)	:	355

IMDG-Code

UN number	:	UN 1992
Proper shipping name	:	FLAMMABLE LIQUID, TOXIC, N.O.S. (Xylene, Flumethrin)
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	III
Labels	:	3 (6.1)
EmS Code	:	F-E, S-D
Marine pollutant	:	no

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

Not applicable for product as supplied.

Domestic regulation

ANTT

UN number	:	UN 1992
Proper shipping name	:	FLAMMABLE LIQUID, TOXIC, N.O.S. (Xylene, Flumethrin)
Class	:	3
Subsidiary risk	:	6.1
Packing group	:	III
Labels	:	3 (6.1)
Hazard Identification Number	:	36

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.

SECTION 15. REGULATORY INFORMATION

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

National List of Carcinogenic Agents for Humans - (LINACH)	:	Not applicable
Brazil. List of chemicals controlled by the Federal Police	:	Xylene

The ingredients of this product are reported in the following inventories:

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

SECTION 16. OTHER INFORMATION

Further information

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

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)
BR BEI	:	Brazil. NR7. Parameters for Biological Control of Occupational Exposure to Some Chemical Agents
BR OEL	:	Brazil. NR 15 - Unhealthy activities and operations

ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
BR OEL / LT	:	Up to 48 hours /week

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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.

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