according to the Globally Harmonized System



# Flumethrin (2%) Formulation

Version Revision Date: SDS Number: Date of last issue: 04.04.2023 1.5 30.09.2023 10225127-00006 Date of first issue: 12.11.2021

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Flumethrin (2%) Formulation

Manufacturer or supplier's details

Company : MSD

Address : Briahnager - Off Pune Nagar Road

Wagholi - Pune - India 412 207

Telephone : +1-908-740-4000

Emergency telephone number: +1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product Restrictions on use : Not applicable

### 2. HAZARDS IDENTIFICATION

#### Manufacture, Storage and Import of Hazardous Chemicals Rules 1989

#### Classification

Highly Toxic, Toxic

GHS Classification

Acute toxicity (Oral) : Category 3

Acute toxicity (Dermal) : Category 2

Skin corrosion/irritation : Category 2

Serious eye damage/eye irri-

tation

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

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Short-term (acute) aquatic

hazard

Category 3

Long-term (chronic) aquatic

hazard

Category 2

**GHS** label elements

Hazard pictograms







Signal word : Danger

Hazard statements : H301 Toxic if swallowed.

H304 May be fatal if swallowed and enters airways.

H310 Fatal 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 re-

peated exposure if swallowed.

H373 May cause damage to organs (Auditory system) through

prolonged or repeated exposure. H402 Harmful to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:

P203 Obtain, read and follow all safety instructions before use.

P260 Do not breathe mist or vapours.

P262 Do not get in eyes, on skin, or on clothing. P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protec-

tion/ face protection.

Response:

P301 + P316 + P330 IF SWALLOWED: Get emergency medi-

cal help immediately. Rinse mouth.

P302 + P352 + P316 IF ON SKIN: Wash with plenty of water.

Get emergency medical help immediately.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and

easy to do. Continue rinsing.

P308 + P316 IF exposed or concerned: Get emergency medi-

cal help immediately.

P331 Do NOT induce vomiting.

P332 + P317 If skin irritation occurs: Get medical help. P337 + P317 If eye irritation persists: Get medical help. P361 + P364 Take off immediately all contaminated clothing

and wash it before reuse.

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P391 Collect spillage.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste

disposal plant.

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

May form explosive dust-air mixture during processing, handling or other means.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture Mixture

#### Components

Chemical name	CAS-No.	Concentration (%
		w/w)
Paraffin oil	8012-95-1	>= 50 - < 70
Xylene	1330-20-7	>= 10 - < 20
Flumethrin	69770-45-2	>= 2.5 - < 5

### 4. FIRST AID MEASURES

General advice In the case of accident or if you feel unwell, seek medical ad-

vice 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 contact, immediately flush skin with plenty of water In case of skin contact

for at least 15 minutes while removing contaminated clothing

and shoes.

Get medical attention immediately. Wash clothing before reuse. Destroy contaminated shoes.

In case of contact, immediately flush eyes with plenty of water In case of eye contact

for at least 15 minutes.

If easy to do, remove contact lens, if worn.

Get medical attention.

If swallowed, DO NOT induce vomiting. If swallowed

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.

Most important symptoms

Toxic if swallowed.

and effects, both acute and

May be fatal if swallowed and enters airways. Fatal in contact with skin.

delayed

Causes skin irritation.

Causes serious eye irritation. May damage the unborn child.

May cause damage to organs if swallowed.

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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).

Treat symptomatically and supportively. Notes to physician

5. FIREFIGHTING MEASURES

Suitable extinguishing media Water spray

> Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire-

fighting

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod-

ucts

Carbon oxides

Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment. Use water spray to cool unopened containers.

Remove undamaged containers from fire area if it is safe to do

Evacuate area.

Special protective equipment:

for firefighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

#### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protec- :

tive equipment and emer-

gency procedures

Evacuate personnel to safe areas.

Only trained personnel should re-enter the area.

Follow safe handling advice (see section 7) and personal pro-

tective 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 Soak up with inert absorbent material.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces

with compressed air).

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. 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-

bent.

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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 deter-

mine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

#### 7. HANDLING AND STORAGE

Technical measures : Static electricity may accumulate and ignite suspended dust

causing an explosion.

Provide adequate precautions, such as electrical grounding

and bonding, or inert atmospheres.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust

ventilation.

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 as-

sessment

Keep container tightly closed.

Minimize dust generation and accumulation. Keep container closed when not in use. Keep away from heat and sources of ignition.

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.

Conditions for safe storage : Keep in properly labelled containers.

Store locked up. Keep tightly closed.

Store in accordance with the particular national regulations.

Materials to avoid : Do not store with the following product types:

**Explosives** 

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Paraffin oil	8012-95-1	TWA (Mist)	5 mg/m3	IN OEL
		STEL (Mist)	10 mg/m3	IN OEL
		TWA (Inhal- able particu- late matter)	5 mg/m3	ACGIH
Xylene	1330-20-7	TWA	100 ppm 435 mg/m3	IN OEL

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		STEL	150 ppm 655 mg/m3	IN OEL
		TWA	20 ppm	ACGIH
Flumethrin	69770-45-2	TWA	45 μg/m3 (OEB 3)	Internal
	Further information: Skin			
		Wipe limit	450 µg/100 cm <sup>2</sup>	Internal

#### **Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sam- pling time	Permissible concentration	Basis
Xylene	1330-20-7	Methylhip- puric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g cre- atinine	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 contain-

ment devices).

Minimize open handling.

#### Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or expo-

sure assessment demonstrates exposures outside the rec-

ommended guidelines, use respiratory protection. Combined particulates and organic vapour type

Filter type Hand protection

Material : Chemical-resistant gloves

Remarks : Consider double gloving.

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.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye

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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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : light brown

Odour : odourized

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 : No data available

Evaporation rate : No data available

Flammability (solid, gas) : May form explosive dust-air mixture during processing, han-

dling or other means.

Flammability (liquids) : Not applicable

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 : 0.750 - 0.950 g/cm<sup>3</sup>

Solubility(ies)

Water solubility : No data available

Partition coefficient: n-

octanol/water

: Not applicable

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Auto-ignition 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

#### 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reac- : May form explosive dust-air mixture during processing, han-

tions dling or other means.

Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.

Avoid dust formation.

Incompatible materials : Oxidizing agents

Hazardous decomposition : No hazardous decomposition products are known.

products

# 11. TOXICOLOGICAL INFORMATION

Information on likely routes of : Inhalation

exposure Skin contact

Ingestion Eye contact

**Acute toxicity** 

Toxic if swallowed.

Fatal in contact with skin.

**Product:** 

Acute oral toxicity : Acute toxicity estimate: 186.2 mg/kg

Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 40 mg/l

Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 185.64 mg/kg

Method: Calculation method

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**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: vapour

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

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

Serious eye damage/eye irritation

Causes serious eye irritation.

**Components:** 

Paraffin oil:

Species : Rabbit

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Result : No eye irritation

Xylene:

Species : Rabbit

Result : Irritation to eyes, reversing within 21 days

Flumethrin:

Result : Mild eye irritation

### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified based on available information.

### Respiratory sensitisation

Not classified based on available information.

#### **Components:**

Xylene:

Test Type : Local lymph node assay (LLNA)

Exposure routes : Skin contact
Species : Mouse
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 mam-

malian 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

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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.

#### 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 - Assess-

ment

Weight of evidence does not support classification as a car-

cinogen

### 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 develop-

ment

: Test Type: Embryo-foetal development

Species: Rat

Application Route: inhalation (vapour)

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Result: negative

Flumethrin:

Effects on foetal develop-

ment

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 - As-

sessment

May damage the unborn child.

### STOT - single exposure

May cause damage to organs if swallowed.

### **Components:**

Xylene:

Assessment : May cause respiratory irritation.

Flumethrin:

Exposure routes : Oral

Assessment : Causes damage to organs.

### 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:

Exposure routes : inhalation (vapour)
Target Organs : Auditory system

Assessment : Shown to produce significant health effects in animals at con-

centrations of >0.2 to 1 mg/l/6h/d.

Flumethrin:

Exposure routes : Oral

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Assessment Causes 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/linhalation (vapour) Application Route

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

#### **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.

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### 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.

#### 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 (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

Method: OECD Test Guideline 209

Remarks: Based on data from similar materials

Toxicity to fish (Chronic tox-

icity)

NOEC: > 0.1 - < 1 mg/lExposure time: 35 d

Species: Danio rerio (zebra fish) Method: OECD Test Guideline 210

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Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

EL10: > 1 - 10 mg/lExposure 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 tox-

icity)

NOEC: 0.046 mg/l Exposure time: 144 h

Species: Danio rerio (zebra fish)

M-Factor (Chronic aquatic

toxicity)

1

### 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

### **Bioaccumulative potential**

#### **Components:**

Paraffin oil:

Partition coefficient: nlog Pow: > 4

Remarks: Calculation octanol/water

Xylene:

Partition coefficient: nlog Pow: 3.16

octanol/water Remarks: Calculation

Flumethrin:

Partition coefficient: n-

octanol/water

log Pow: 6.2

Mobility in soil

No data available

Other adverse effects

No data available

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#### 13. DISPOSAL CONSIDERATIONS

**Disposal methods** 

Waste from residues : Do not dispose of waste into sewer.

Dispose of in accordance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste han-

dling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

#### 14. TRANSPORT INFORMATION

### **International Regulations**

**UNRTDG** 

UN number : UN 2810

Proper shipping name : TOXIC LIQUID, ORGANIC, N.O.S.

(Flumethrin)

Class : 6.1
Packing group : II
Labels : 6.1
Environmentally hazardous : no

IATA-DGR

UN/ID No. : UN 2810

Proper shipping name : Toxic liquid, organic, n.o.s.

(Flumethrin)

Class : 6.1
Packing group : II
Labels : Toxic
Packing instruction (cargo : 662

aircraft)

Packing instruction (passen: 6

ger aircraft)

654

**IMDG-Code** 

UN number : UN 2810

Proper shipping name : TOXIC LIQUID, ORGANIC, N.O.S.

(Flumethrin)

Class : 6.1
Packing group : II
Labels : 6.1
EmS Code : F-A, S-A
Marine pollutant : yes

#### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### 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.

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#### 15. REGULATORY INFORMATION

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

### **16. OTHER INFORMATION**

Revision Date : 30.09.2023

**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 Agen-

cy, http://echa.europa.eu/

Date format : dd.mm.yyyy

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)

IN OEL : India. Permissible levels of certain chemical substances in

work environment.

ACGIH / TWA : 8-hour, time-weighted average

IN OEL / TWA : Time-Weighted Average Concentration (TWA) (8 hrs.)

IN OEL / STEL : Short-term exposure Limit STEL (15 min)

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

according to the Globally Harmonized System



# Flumethrin (2%) Formulation

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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.

IN / EN