

# **Deltamethrin (5%) Formulation**

Date of last issue: 2024/04/06 Version **Revision Date:** SDS Number: 6.0 2024/07/06 2333302-00020 Date of first issue: 2017/12/12

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name Deltamethrin (5%) Formulation

Manufacturer or supplier's details

Company : MSD

Address 126 E. Lincoln Avenue

Rahway, New Jersey U.S.A. 07065

Telephone 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 Not applicable Restrictions on use

#### 2. HAZARDS IDENTIFICATION

**GHS Classification** 

Flammable liquids Category 3

Acute toxicity (Oral) Category 4

Skin corrosion/irritation Category 2

Serious eye damage/eye irri-

tation

Category 1

Skin sensitisation Category 1

Reproductive toxicity Category 2

Specific target organ toxicity - :

single exposure

Category 3

repeated exposure (Oral)

Specific target organ toxicity - : Category 2 (Central nervous system, Immune system)

Specific target organ toxicity - :

repeated exposure (Inhala-

tion)

Category 2 (Central nervous system)

Category 1 Aspiration hazard



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Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

hazard

Category 1

**GHS** label elements

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.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H335 May cause respiratory irritation. H336 May cause drowsiness or dizziness.

H361fd Suspected of damaging fertility. Suspected of damag-

ing the unborn child.

H373 May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if

swallowed.

H373 May cause damage to organs (Central nervous system)

through prolonged or repeated exposure if inhaled. H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.

P233 Keep container tightly closed.

P241 Use explosion-proof electrical/ ventilating/ lighting equip-

ment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260 Do not breathe mist or vapours. P264 Wash skin thoroughly after handling.

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

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing should not be allowed out of

the workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protec-

tion/ face protection.



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#### Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

P331 Do NOT induce vomiting.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

P391 Collect spillage.

#### Storage:

P403 + P235 Store in a well-ventilated place. Keep cool. P405 Store locked up.

#### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

## Other hazards which do not result in classification

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours). Vapours may form explosive mixture with air.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

Chemical name	CAS-No.	Concentration (% w/w)
Hydrocarbons, C9, aromatics	Not Assigned	>= 30 -< 60
2-Methoxy-1-methylethyl acetate	108-65-6	>= 20 -< 30
Benzenesulfonic acid, C10-13-alkyl derivs.,	Not Assigned	>= 3 -< 10
calcium salts		
2-Methyl-1-propanol	78-83-1	>= 3 -< 10
deltamethrin (ISO)	52918-63-5	>= 3 -< 10

#### 4. FIRST AID MEASURES

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



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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 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 immediately. If swallowed, DO NOT induce vomiting.

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.

Most important symptoms and effects, both acute and

delaved

Harmful if swallowed.

May be fatal if swallowed and enters airways.

Causes skin irritation.

May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. May cause drowsiness or dizziness.

Suspected of damaging fertility. Suspected of damaging the

unborn child.

May cause damage to organs through prolonged or repeated

exposure if swallowed.

May cause damage to organs through prolonged or repeated

exposure if inhaled.

This product contains a pyrethroid.

Pyrethroid poisoning should not be confused with carbamate

or organophosphate poisoning.

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.

#### 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray

Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

nedia

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. Vapours may form explosive mixtures with air.



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Exposure to combustion products may be a hazard to health.

Hazardous combustion prod: :

ucts

Carbon oxides

Metal oxides

Nitrogen oxides (NOx) Bromine compounds Sulphur 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

SO.

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, protective equipment and emer-

gency procedures

Remove all sources of ignition.

Use personal protective equipment.

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

parriers).

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/vapours/mists with a water

spray jet.

For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absor-

bent.

Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to 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 : See Engineering measures under EXPOSURE



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CONTROLS/PERSONAL PROTECTION section.

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

ventilation.

Use explosion-proof electrical, ventilating and lighting equip-

ment.

Do not get on skin or clothing. Advice on safe handling

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

Non-sparking tools should be used. Keep container tightly closed.

Already sensitised individuals, and those susceptible

to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respira-

tory irritants or sensitisers.

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.

Keep in properly labelled containers. Conditions for safe storage

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. Do not store with the following product types:

Self-reactive substances and mixtures

Organic peroxides Oxidizing agents Flammable gases Pyrophoric liquids Pyrophoric solids

Self-heating substances and mixtures

Poisonous gases

**Explosives** 

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Materials to avoid

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2-Methyl-1-propanol	78-83-1	NAB	50 ppm 152 mg/m3	ID OEL
		TWA	50 ppm	ACGIH



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deltamethrin (ISO)	52918-63-5	TWA	15 μg/m3 (OEB 3)	Internal		
	Further information: DSEN, Skin					
		Wipe limit	100 μg/100 cm <sup>2</sup>	Internal		

**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 con-

tainment devices).

Minimize open handling.

Use explosion-proof electrical, ventilating and lighting equip-

ment.

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

Consider double gloving. Take note that the product is flam-Remarks

mable, 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, dis-

posable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially

contaminated clothing.

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

eye flushing systems and safety showers close to the work-

When using do not eat, drink or smoke.

Contaminated work clothing should not be allowed out of the

workplace.

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,



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industrial hygiene monitoring, medical surveillance and the use of administrative controls.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : yellow

Odour : No data available

Odour Threshold : No data available

pH : 3-5

Melting point/freezing point : No data available

Initial boiling point and boiling

range

No data available

Flash point : 45 - 51 °C

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

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 : 0.963 - 0.967 g/cm<sup>3</sup>

Solubility(ies)

Water solubility : completely miscible

Partition coefficient: n-

octanol/water

: No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Viscosity



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No data available Viscosity, kinematic

Explosive properties Not explosive

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

Molecular weight No data available

Particle characteristics

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-

tions

Flammable liquid and vapour.

Vapours 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.

# 11. TOXICOLOGICAL INFORMATION

Information on likely routes of: Inhalation

exposure

Skin contact Ingestion Eye contact

**Acute toxicity** 

Harmful if swallowed.

**Product:** 

Acute oral toxicity Acute toxicity estimate: 1,334 mg/kg

Method: Calculation method

Acute inhalation toxicity Acute toxicity estimate: > 5 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: Calculation method

## **Components:**

Hydrocarbons, C9, aromatics:

Acute oral toxicity LD50 (Rat, female): 3,492 mg/kg

Acute inhalation toxicity LC50 (Rat): > 6.193 mg/l

Exposure time: 4 h



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Test atmosphere: vapour

Assessment: The substance or mixture has no acute inhala-

tion toxicity

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg

Assessment: The substance or mixture has no acute dermal

toxicity

2-Methoxy-1-methylethyl acetate:

Acute oral toxicity : LD50 (Rat, female): 5,155 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 9.34 mg/l

Exposure time: 4 h
Test atmosphere: vapour

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

Assessment: The substance or mixture has no acute dermal

toxicity

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Acute oral toxicity : LD50 (Rat): 4,445 mg/kg

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

Method: OECD Test Guideline 402

Remarks: Based on data from similar materials

2-Methyl-1-propanol:

Acute oral toxicity : LD50 (Rat, female): 3,350 mg/kg

Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 18.18 mg/l

Exposure time: 6 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit, female): 2,460 mg/kg

Method: OECD Test Guideline 402

deltamethrin (ISO):

Acute oral toxicity : LD50 (Rat): 66.7 mg/kg

LD50 (Rat): 9 - 139 mg/kg

LD50 (Mouse): 19 - 34 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.8 mg/l

Exposure time: 2 h

Test atmosphere: dust/mist

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



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LD50 (Rat): > 800 mg/kg

Acute toxicity (other routes of : LD50 (Rat): 2.5 mg/kg

administration)

Application Route: Intravenous

LD50 (Mouse): 10 mg/kg

Application Route: Intraperitoneal

#### Skin corrosion/irritation

Causes skin irritation.

#### **Components:**

#### Hydrocarbons, C9, aromatics:

Assessment Repeated exposure may cause skin dryness or cracking.

#### 2-Methoxy-1-methylethyl acetate:

Rabbit **Species** 

Result No skin irritation

# Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Species Rabbit

Method OECD Test Guideline 404

Result Skin irritation

## 2-Methyl-1-propanol:

**Species** : Rabbit

Method : OECD Test Guideline 404

Result Skin irritation

#### deltamethrin (ISO):

Species Rabbit

. Result No skin irritation

# Serious eye damage/eye irritation

Causes serious eye damage.

### **Components:**

# Hydrocarbons, C9, aromatics:

Species Rabbit

Result No eye irritation

### 2-Methoxy-1-methylethyl acetate:

Species Rabbit

No eye irritation Result



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## Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Species : Rabbit

Result : Irreversible effects on the eye Method : OECD Test Guideline 405

2-Methyl-1-propanol:

Species : Rabbit

Result : Irreversible effects on the eye
Method : OECD Test Guideline 405

deltamethrin (ISO):

Species : Rabbit

Result : Moderate eye irritation

## Respiratory or skin sensitisation

#### Skin sensitisation

May cause an allergic skin reaction.

# Respiratory sensitisation

Not classified based on available information.

#### **Components:**

# Hydrocarbons, C9, aromatics:

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

Method : OECD Test Guideline 406

Result : negative

# 2-Methoxy-1-methylethyl acetate:

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

Method : OECD Test Guideline 406

Result : negative

## Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Test Type : Magnusson-Kligman-Test

Exposure routes : Skin contact Species : Guinea pig

Method : OECD Test Guideline 406

Remarks : Based on data from similar materials

2-Methyl-1-propanol:

Test Type : Buehler Test Exposure routes : Skin contact



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Species : Guinea pig

Method : OECD Test Guideline 406

Result : negative

Remarks : Based on data from similar materials

deltamethrin (ISO):

Test Type : Maximisation Test

Exposure routes : Dermal Species : Guinea pig Result : negative

Test Type : Human repeat insult patch test (HRIPT)

Exposure routes : Dermal Species : Humans Result : positive

Germ cell mutagenicity

Not classified based on available information.

Components:

Hydrocarbons, C9, aromatics:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow

cytogenetic test, chromosomal analysis)

Species: Rat

Application Route: inhalation (vapour)

Result: negative

2-Methoxy-1-methylethyl acetate:

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

Result: negative

Test Type: Chromosome aberration test in vitro

Result: negative

Test Type: DNA damage and repair, unscheduled DNA syn-

thesis in mammalian cells (in vitro)

Result: negative

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

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

Method: Directive 67/548/EEC, Annex, B.13/14

Result: negative

Remarks: Based on data from similar materials

2-Methyl-1-propanol:



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

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Test Type: in vitro micronucleus test

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Ingestion Method: OECD Test Guideline 474

Result: negative

deltamethrin (ISO):

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

Result: negative

Test Type: DNA Repair Test system: Escherichia coli

Result: negative

Test Type: Chromosomal aberration
Test system: Chinese hamster ovary cells

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Concentration: LOAEL: 20 mg/kg

Result: positive

Genotoxicity in vivo : Test Type: Micronucleus test

Species: Mouse Application Route: Oral Result: negative

Test Type: dominant lethal test

Species: Mouse Application Route: Oral Result: negative

Test Type: sister chromatid exchange assay

Species: Mouse

Cell type: Bone marrow Application Route: Oral

Result: negative

Carcinogenicity

Not classified based on available information.



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#### **Components:**

# 2-Methoxy-1-methylethyl acetate:

Species

Application Route
Exposure time inhalation (vapour)

2 Years

Method : OECD Test Guideline 453

Result : negative

Remarks Based on data from similar materials

deltamethrin (ISO):

Species Mouse, male and female

Application Route oral (feed) Exposure time : 104 weeks

NOAEL : 8 mg/kg body weight LOAEL 4 mg/kg body weight

positive Result Target Organs Lymph nodes

Species Rat, male and female

Application Route oral (feed) Exposure time : 2 Years Result : negative

Species Dog, male and female

Application Route : oral (feed) Exposure time : 2 Years

NOAEL : 1 mg/kg body weight

Result negative

#### Reproductive toxicity

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

## **Components:**

#### Hydrocarbons, C9, aromatics:

Effects on fertility Test Type: Three-generation reproduction toxicity study

Species: Rat

Application Route: inhalation (vapour)

Result: negative

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Mouse

Application Route: inhalation (vapour)

Result: negative

## 2-Methoxy-1-methylethyl acetate:

Effects on fertility Test Type: Two-generation reproduction toxicity study

Species: Rat

Application Route: inhalation (vapour) Method: OECD Test Guideline 416



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Result: negative

Remarks: Based on data from similar materials

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Rat

Application Route: inhalation (vapour)

Result: negative

2-Methyl-1-propanol:

Effects on fertility Test Type: Two-generation reproduction toxicity study

Species: Rat

Application Route: inhalation (vapour)

Method: OPPTS 870.3800

Result: negative

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Rat

Application Route: inhalation (vapour) Method: OECD Test Guideline 414

Result: negative

deltamethrin (ISO):

Effects on fertility Test Type: Three-generation reproduction toxicity study

Species: Rat

Application Route: oral (feed)

Early Embryonic Development: NOAEL: 50 mg/kg body

weiaht

Symptoms: No effects on fertility, Embryo-foetal toxicity

Remarks: Significant toxicity observed in testing

Test Type: Two-generation reproduction toxicity study

Species: Rat

Application Route: Oral

Early Embryonic Development: LOAEL: 84 - 149 mg/kg body

weight

Symptoms: No effects on fertility, Embryo-foetal toxicity

Test Type: Fertility Species: Rat, male Application Route: Oral

Fertility: LOAEL: 1 mg/kg body weight

Symptoms: Effects on fertility

Target Organs: Testes

Effects on foetal develop-

ment

Test Type: Development

Species: Mouse

Application Route: oral (gavage)

Developmental Toxicity: LOAEL: 1 mg/kg body weight

Result: Skeletal malformations Remarks: Maternal toxicity observed.



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Test Type: Development Species: Rat, female

Developmental Toxicity: NOAEL: 10 mg/kg body weight

Symptoms: No effects on foetal development

Test Type: Development Species: Rabbit, female

Application Route: oral (gavage)

Developmental Toxicity: NOAEL: 16 mg/kg body weight

Symptoms: No effects on foetal development

Reproductive toxicity - As-

sessment

Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

#### STOT - single exposure

May cause respiratory irritation. May cause drowsiness or dizziness.

## **Components:**

## Hydrocarbons, C9, aromatics:

Assessment : May cause drowsiness or dizziness.

Assessment : May cause respiratory irritation.

## 2-Methoxy-1-methylethyl acetate:

Assessment : May cause drowsiness or dizziness.

2-Methyl-1-propanol:

Assessment : May cause respiratory irritation.

May cause drowsiness or dizziness.

deltamethrin (ISO):

Assessment : May cause respiratory irritation.

#### STOT - repeated exposure

May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.

May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

#### **Components:**

# deltamethrin (ISO):

Exposure routes : Ingestion

Target Organs : Central nervous system, Immune system

Assessment : Causes damage to organs through prolonged or repeated

exposure.



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: inhalation (dust/mist/fume) Exposure routes Target Organs : Central nervous system

Assessment : Causes damage to organs through prolonged or repeated

exposure.

#### Repeated dose toxicity

#### Components:

#### Hydrocarbons, C9, aromatics:

Species Rat, female NOAEL 900 mg/m3 Application Route : inhalation (vapour)

Exposure time : 12 Months

: Based on data from similar materials Remarks

## 2-Methoxy-1-methylethyl acetate:

Species

NOAEL : >= 1,000 mg/kg: Ingestion : 41 - 45 Days Application Route Exposure time

: OECD Test Guideline 422 Method

: Rat **Species** : > 1 mg/l NOAEL

: inhalation (vapour) Application Route

: 2 yr Exposure time

Method : OECD Test Guideline 453

Remarks : Based on data from similar materials

: Rabbit Species NOAEL : > 200 mg/kg Application Route : Skin contact Exposure time : 90 Days

: Based on data from similar materials Remarks

#### 2-Methyl-1-propanol:

Species : Rat

NOAEL : > 1,450 mg/kgApplication Route : Ingestion Exposure time : 90 Days

Method : OECD Test Guideline 408

Species : Rat

NOAEL : >= 7.5 mg/lApplication Route : inhalation (vapour)

Exposure time : 17 Weeks

deltamethrin (ISO):

Species Rat, male and female



# **Deltamethrin (5%) Formulation**

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NOAEL 1 mg/kg LOAEL 2.5 mg/kg Application Route
Exposure time : Oral Exposure time 13 Weeks Target Organs Nervous system Symptoms hyperexcitability

**Species** Rat LOAEL 3 mg/m3

Application Route inhalation (dust/mist/fume) Exposure time 2 wk / 5 d/wk / 6 h/d

Symptoms Local irritation, respiratory tract irritation

Species Dog NOAEL 0.1 mg/kg LOAEL 1 mg/kg Application Route Oral Exposure time : 13 Weeks Target Organs : Nervous system

Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Saliva-Symptoms

Species Rat NOAEL 14 mg/kg LOAEL 54 mg/kg Application Route Oral Exposure time 91 d

Target Organs Nervous system

Species Mouse LOAEL 6 mg/kg Application Route : Oral Exposure time : 12 Weeks Target Organs Immune system

Symptoms immune system effects

#### **Aspiration toxicity**

May be fatal if swallowed and enters airways.

#### **Product:**

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.

# **Components:**

## Hydrocarbons, C9, aromatics:

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.



# **Deltamethrin (5%) Formulation**

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#### 2-Methyl-1-propanol:

The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

## **Experience with human exposure**

#### **Components:**

#### deltamethrin (ISO):

Inhalation : Symptoms: respiratory tract irritation, Dizziness, Sweating,

Headache, Nausea, Vomiting, anorexia, Fatigue, tingling,

Palpitation, Blurred vision, muscle twitching

Skin contact : Symptoms: Skin irritation, Erythema, pruritis, Headache, Nau-

sea, Vomiting, Dizziness, tingling, Sweating, muscle twitching,

Blurred vision, Fatigue, anorexia, Allergic reactions

Ingestion : Symptoms: muscle pain, Small pupils

#### 12. ECOLOGICAL INFORMATION

## **Ecotoxicity**

## **Components:**

# Hydrocarbons, C9, aromatics:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 9.2 mg/l

Exposure time: 96 h

Test substance: Water Accommodated Fraction

Method: OECD Test Guideline 203

Toxicity to daphnia and other:

aquatic invertebrates

EL50 (Daphnia magna (Water flea)): 3.2 mg/l

Exposure time: 48 h

Test substance: Water Accommodated Fraction

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EL50 (Pseudokirchneriella subcapitata (green algae)): 7.9

mg/l

Exposure time: 72 h

Test substance: Water Accommodated Fraction

Method: OECD Test Guideline 201

NOELR (Pseudokirchneriella subcapitata (green algae)): 0.22

mg/l

Exposure time: 72 h

Test substance: Water Accommodated Fraction

Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50: > 99 mg/l

Exposure time: 10 min

#### 2-Methoxy-1-methylethyl acetate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 - 180



# **Deltamethrin (5%) Formulation**

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mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 500 mg/l

Exposure time: 48 h

Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic

plants

ErC50 (Raphidocelis subcapitata (freshwater green alga)): >

1,000 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

NOEC (Raphidocelis subcapitata (freshwater green alga)): >=

1,000 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 201

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): >= 100 mg/l

Exposure time: 21 d

Method: OECD Test Guideline 211

Toxicity to microorganisms : EC10 (activated sludge): > 1,000 mg/l

Exposure time: 30 min

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Toxicity to fish : LC50 : > 1 - < 10 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other:

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Based on data from similar materials

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 -

100 mg/l

Exposure time: 96 h

Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): > 0.1 -

1 mg/l

Exposure time: 96 h

Remarks: Based on data from similar materials

Toxicity to fish (Chronic tox-

icity)

: NOEC (Oncorhynchus mykiss (rainbow trout)): > 0.1 - 1 mg/l

Exposure time: 72 d

Remarks: Based on data from similar materials

NOEC (Daphnia magna (Water flea)): > 1 mg/l

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

Exposure time: 21 d

ic toxicity) Remarks: Based on data from similar materials



# **Deltamethrin (5%) Formulation**

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I

2-Methyl-1-propanol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1,430 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia pulex (Water flea)): 1,100 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic :

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,799

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 117

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 20 mg/l

Exposure time: 21 d

Toxicity to microorganisms

EC50: > 1,000 mg/l

Exposure time: 16 h

deltamethrin (ISO):

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.00048

mg/l

Exposure time: 96 h

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l

Exposure time: 96 h

Toxicity to daphnia and other:

aquatic invertebrates

EC50 (Mysidopsis bahia (opossum shrimp)): 0.0037 µg/l

Exposure time: 48 h

EC50 (Daphnia magna (Water flea)): 0.0035 mg/l

Exposure time: 48 h

LC50 (Gammarus fasciatus (freshwater shrimp)): 0.0003 µg/l

Exposure time: 96 h

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): > 9.1

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: No toxicity at the limit of solubility

M-Factor (Acute aquatic tox- :

city)

1,000,000

Toxicity to fish (Chronic tox-

icity)

NOEC (Pimephales promelas (fathead minnow)): 0.000022

mg/l



# **Deltamethrin (5%) Formulation**

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Exposure time: 36 d

NOEC (Pimephales promelas (fathead minnow)): 0.000017

Exposure time: 260 d

Toxicity to daphnia and other: aquatic invertebrates (Chron-

ic toxicity)

M-Factor (Chronic aquatic

toxicity)

NOEC (Daphnia magna (Water flea)): 0.0041 µg/l Exposure time: 21 d

1,000,000

Persistence and degradability

**Components:** 

Hydrocarbons, C9, aromatics:

Biodegradability Result: Readily biodegradable.

Biodegradation: 78 % Exposure time: 28 d

Method: OECD Test Guideline 301F

2-Methoxy-1-methylethyl acetate:

Biodegradability Result: Readily biodegradable.

Biodegradation: 83 % Exposure time: 28 d

Method: OECD Test Guideline 301F

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Biodegradability Result: Readily biodegradable.

> Biodegradation: 100 % Exposure time: 28 d

Method: OECD Test Guideline 301B

2-Methyl-1-propanol:

Biodegradability Result: Readily biodegradable.

Biodegradation: 74 % Exposure time: 28 d

Method: OECD Test Guideline 301D

deltamethrin (ISO):

Stability in water Hydrolysis: 0 %(30 d)

**Bioaccumulative potential** 

**Components:** 

Hydrocarbons, C9, aromatics:

Partition coefficient: nlog Pow: 3.7 - 4.5

octanol/water



# **Deltamethrin (5%) Formulation**

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2-Methoxy-1-methylethyl acetate:

Partition coefficient: n- : log Pow: 1.2

octanol/water

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Partition coefficient: n- : log Pow: 2.89

octanol/water

2-Methyl-1-propanol:

Partition coefficient: n- : log Pow: 1

octanol/water Method: OECD Test Guideline 117

deltamethrin (ISO):

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): 1,800

Partition coefficient: n- : log Pow: 4.6

octanol/water

Mobility in soil

Components:

deltamethrin (ISO):

Distribution among environ-

mental compartments

: log Koc: 7.2

Other adverse effects

No data available

## 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.

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.

#### 14. TRANSPORT INFORMATION

# **International Regulations**

**UNRTDG** 

UN number : UN 1993

Proper shipping name : FLAMMABLE LIQUID, N.O.S.

(Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl ace-

ate)



# **Deltamethrin (5%) Formulation**

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Class 3 Packing group Ш 3 Environmentally hazardous no

**IATA-DGR** 

UN/ID No. UN 1993

Proper shipping name Flammable liquid, n.o.s.

(Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl ace-

Class 3 Packing group Ш

Labels Flammable Liquids

Packing instruction (cargo

aircraft)

Packing instruction (passen-

355

ger aircraft)

**IMDG-Code** 

**UN** number UN 1993

Proper shipping name FLAMMABLE LIQUID, N.O.S.

(Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl ace-

tate, deltamethrin (ISO))

Class 3 Packing group Ш Labels 3 **EmS Code** F-E, <u>S-E</u> Marine pollutant yes

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

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.

#### 15. REGULATORY INFORMATION

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

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances **Hazardous to Health** 

Hazardous substances that must be registered Not applicable

Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances



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Hazardous substances approved for use Not applicable

Prohibited substances Not applicable

Restricted substances Not applicable

## Regulation of the Ministry of Trade No. 7 of 2022 on Distribution and Control of Hazardous **Materials**

Type of hazardous materials subject to distribution and : Not applicable

control, Annex I

Type of hazardous materials subject to distribution and : Not applicable

control. Annex II

## 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** 2024/07/06

**Further information** 

compile the Safety Data

Sources of key data used to : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

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

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

Date format : yyyy/mm/dd

Full text of other abbreviations

**ACGIH** USA. ACGIH Threshold Limit Values (TLV) ID OEL Indonesia. Occupational Exposure Limits

ACGIH / TWA 8-hour, time-weighted average ID OEL / NAB Long term exposure limit

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



# **Deltamethrin (5%) Formulation**

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- 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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