

SAFETY DATA SHEET

MUSTANG® 350 EC



Version	Revision Date:	SDS Number:	Date of last issue: -
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SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : MUSTANG® 350 EC

Other means of identification : ZETA-CYPERMETHRIN 350 g/L EC

Manufacturer or supplier's details

Company : FMC QUÍMICA DO BRASIL LTDA.

Address : AVENIDA DR. JOSÉ BONIFÁCIO
COUTINHO NOGUEIRA 150 - 1º
ANDAR - JARDIM MADALENA,
CAMPINAS SP BRASIL
TELEFONE: (19) 2042-4500

Emergency telephone : Brazil: (34) 3319 3019 or 0800 34 35 450 (24 hours)
+55-2139581449 (CHEMTREC)

Recommended use of the chemical and restrictions on use

Recommended use : Insecticide

Restrictions on use : Use as recommended by the label.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification in accordance with ABNT NBR 14725 Standard

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 3

Acute toxicity (Inhalation) : Category 4

Acute toxicity (Dermal) : Category 3

Serious eye damage/eye irritation : Category 2B

Specific target organ toxicity - single exposure : Category 2

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Specific target organ toxicity - repeated exposure : Category 2

Short-term (acute) aquatic hazard : Category 1

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Long-term (chronic) aquatic hazard : Category 1

GHS label elements in accordance with ABNT NBR 14725 Standard

Hazard pictograms :    

Signal Word : DANGER

Hazard Statements : H226 Flammable liquid and vapor.
H301 + H311 Toxic if swallowed or in contact with skin.
H320 Causes eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H371 May cause damage to organs.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapors.
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

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P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
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

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
oxydipropyl dibenzoate	27138-31-4	Acute Tox. (Oral), 5 Aquatic Acute, 2 Aquatic Chronic, 3	>= 50 -< 70
Zeta cypermethrin	52315-07-8	Acute Tox. (Oral), 3 Acute Tox. (Inhalation), 4 Acute Tox. (Dermal), 5 Skin Sens., 1 STOT SE, (Nervous system), 2 STOT SE, (Respiratory system), 3 STOT RE, (Nervous system), 2 Aquatic Acute, 1 Aquatic Chronic, 1	>= 30 -< 50
Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts (alternate CAS 26264-06-2)	68584-23-6	Acute Tox. (Dermal), 5 Skin corrosion/irritation, 2 Serious eye damage/eye irritation, 1 Aquatic Acute, 2 Aquatic Chronic, 3	>= 3 -< 5
2-ethylhexan-1-ol	104-76-7	Flam. Liq., 4 Acute Tox. (Oral), 5 Acute Tox. (Inhalation), 5	>= 1 -< 2,5

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		tion), 4 Skin corro- sion/irritation, 2 Serious eye dam- age/eye irritation, 2A STOT SE, (Respirato- ry system) , 3 Aquatic Acute, 3	
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SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this material safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : Wash off with soap and water.
If symptoms persist, call a physician.
Wash contaminated clothing before re-use.
- If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : Toxic if swallowed or in contact with skin.
Causes eye irritation.
Harmful if inhaled.
May cause respiratory irritation.
May cause damage to organs.
May cause damage to organs through prolonged or repeated exposure.
Exposure may result in tremors, decreased motor activity, and or impaired gait.
- Protection of first-aiders : Avoid inhalation, ingestion and contact with skin and eyes.
- Notes to physician : Treat symptomatically.

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SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Dry chemical, CO₂, water spray or regular foam.
- Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : Do not spread spilled material with high-pressure water streams.
- High volume water jet
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Fire may produce irritating, corrosive and/or toxic gases.
Nitrogen oxides (NO_x)
Chlorinated compounds
Hydrogen chloride
Hydrogen cyanide
Carbon oxides
- Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
Use a water spray to cool fully closed containers.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Use personal protective equipment.
If it can be safely done, stop the leak.
Do not touch or walk through the spilled material.
Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.

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If the product contaminates rivers and lakes or drains inform respective authorities.

Methods and materials for containment and cleaning up : Never return spills in original containers for re-use.
Collect as much of the spill as possible with a suitable absorbent material.
Pick up and transfer to properly labeled containers.
Keep in suitable, closed containers for disposal.

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
Keep away from open flames, hot surfaces and sources of ignition.

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

Hygiene measures : Avoid contact with skin, eyes and clothing.
Do not inhale aerosol.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

Conditions for safe storage : No smoking.
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2-ethylhexan-1-ol	104-76-7	TWA	5 ppm	ACGIH

Personal protective equipment

- Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.
- Hand protection
Material : Protective gloves
- Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.
- Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
- Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Protective measures : Plan first aid action before beginning work with this product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state : liquid
- Color : clear, yellow, amber
- Odor : characteristic
- Odor Threshold : No data available
- pH : 5,4
- Melting point/ range : No data available
- Boiling point/boiling range : No data available
- Flash point : 48 °C

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Evaporation rate	:	No data available
Flammability (liquids)	:	Sustains combustion
Self-ignition	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	133,2 Pa (25 °C)
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	990 - 1.010 kg/m ³ (20 °C)
Solubility(ies)		
Water solubility	:	Miscible
Solubility in other solvents	:	Description: miscible with most organic solvents
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	9,51 mPa.s (20 °C)
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	Non-oxidizing
Molecular weight	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	No decomposition if stored and applied as directed.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed. Vapors may form explosive mixture with air.

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Conditions to avoid	: Heat, flames and sparks. Avoid extreme temperatures. Avoid formation of aerosol.
Incompatible materials	: Avoid strong acids, bases, and oxidizers.
Hazardous decomposition products	: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact

Acute toxicity

Toxic if swallowed or in contact with skin.
Harmful if inhaled.

Product:

Acute oral toxicity	: LD50 (Rat): 137,5 mg/kg
Acute inhalation toxicity	: LC50 (Rat): 3,1 mg/l Test atmosphere: dust/mist Acute toxicity estimate: 4,05 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	: LD50 (Rabbit): 722,2 mg/kg

Components:

oxydipropyl dibenzoate:

Acute oral toxicity	: LD50 (Rat, male): 5.072 mg/kg Method: OECD Test Guideline 401 Symptoms: Fatality LD50 (Rat, female): 3.295 mg/kg Method: OECD Test Guideline 401 Symptoms: Fatality
Acute dermal toxicity	: LD50 (Rat, male and female): > 2.000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity Remarks: no mortality

Zeta cypermethrin:

Acute oral toxicity	: LD50 (Rat, male): 187 - 326 mg/kg Symptoms: Gastrointestinal tract damage, hypoactivity, apa-
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thy, piloerection, ataxia, Salivation

LD50 (Rat, male and female): 69,2 - 142,3 mg/kg

Method: FIFRA 81.01

GLP: yes

Acute inhalation toxicity : LC50 (Rat, female): 1,6 - 3,4 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: EPA OPP 81 - 3

LC50 (Rat, male and female): 1,26 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: EPA OPP 81 - 3

Target Organs: Nervous system

Symptoms: Fatality

GLP: yes

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

LD50 (Rabbit): > 2.460 mg/kg

Remarks: no mortality

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Acute oral toxicity : LD50 (Rat, male and female): > 5.000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LD50 (Rat, male and female): > 1,9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 4.000 mg/kg
Remarks: Based on data from similar materials

2-ethylhexan-1-ol:

Acute oral toxicity : LD50 (Rat, male): 2.047 mg/kg

Acute inhalation toxicity : LC50 (Rat): 4,3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat, male and female): > 3.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

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Product:

Species	:	Rabbit
Result	:	No skin irritation

Components:

Zeta cypermethrin:

Species	:	Rabbit
Assessment	:	No skin irritation
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Species	:	Rabbit
Assessment	:	Not classified as irritant
Result	:	slight irritation
GLP	:	yes

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Assessment	:	Irritating to skin.
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2-ethylhexan-1-ol:

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

Serious eye damage/eye irritation

Causes eye irritation.

Product:

Species	:	Rabbit
Result	:	Mild eye irritation

Components:

Zeta cypermethrin:

Species	:	Rabbit
Result	:	No eye irritation
Assessment	:	Not classified as irritant
Method	:	OECD Test Guideline 405

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Assessment	:	Risk of serious damage to eyes.
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2-ethylhexan-1-ol:

Species	:	Rabbit
Result	:	Irritation to eyes, reversing within 21 days
Method	:	OECD Test Guideline 405

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Respiratory or skin sensitization**Skin sensitization**

Based on available data, the classification criteria are not met.

Respiratory sensitization

Based on available data, the classification criteria are not met.

Product:

Species	:	Guinea pig
Result	:	Not a skin sensitizer.

Components:**Zeta cypermethrin:**

Test Type	:	Local lymph node assay (LLNA)
Routes of exposure	:	Dermal
Species	:	mice
Assessment	:	May cause sensitization by skin contact.
Method	:	OECD Test Guideline 429
Result	:	May cause sensitization by skin contact.

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Test Type	:	Buehler Test
Species	:	Guinea pig
Result	:	Not a skin sensitizer.
Remarks	:	Based on data from similar materials

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:**Zeta cypermethrin:**

Genotoxicity in vitro	:	Test Type: Ames test Result: negative Test Type: unscheduled DNA synthesis assay Test system: rat hepatocytes Result: negative Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: chromosome aberration assay Species: Chinese hamster Cell type: Bone marrow Application Route: Oral Result: negative
Germ cell mutagenicity - Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

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Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Intraperitoneal injection
Exposure time: 72 hrs
Method: Mutagenicity (micronucleus test)
Remarks: Based on data from similar materials

2-ethylhexan-1-ol:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Carcinogenicity

Based on available data, the classification criteria are not met.

Components:**Zeta cypermethrin:**

Species : Rat
Application Route : Oral
Exposure time : 24 month(s)
NOAEL : 7,5 mg/kg bw/day
Result : negative

2-ethylhexan-1-ol:

Species : Rat
Application Route : Oral
Exposure time : 24 month(s)
Result : negative

Reproductive toxicity

Based on available data, the classification criteria are not met.

Components:**Zeta cypermethrin:**

Effects on fertility : Test Type: Two-generation study
Species: Rat
Application Route: Oral
General Toxicity F1: NOAEL: 22 mg/kg bw/day

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Method: OECD Test Guideline 416

Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Oral
General Toxicity Maternal: NOAEL: 12,5 mg/kg bw/day
Developmental Toxicity: NOAEL: 35 mg/kg bw/day
Method: OECD Test Guideline 426
Result: negative
GLP: yes

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Effects on fertility : Test Type: one-generation reproductive toxicity
Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 415
Result: No effects on fertility and early embryonic development were detected.

2-ethylhexan-1-ol:

Effects on fetal development : Test Type: Embryo-fetal development
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 414
Result: negative

STOT-single exposure

May cause respiratory irritation.
May cause damage to organs.

Product:

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 2.

Components:

Zeta cypermethrin:

Target Organs : Nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 2.

Assessment : May cause respiratory irritation.

2-ethylhexan-1-ol:

Assessment : May cause respiratory irritation.

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STOT-repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Product:

Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Components:

Zeta cypermethrin:

Target Organs : Nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Repeated dose toxicity

Components:

Zeta cypermethrin:

Species : Dog
NOAEL : 5 mg/kg
LOAEL : 15 mg/kg
Application Route : Oral
Exposure time : 1 yr
Dose : 1, 5, 15 mg/kg/d
Symptoms : Gastrointestinal disturbance, Neurological disorders

Species : Dog
NOAEL : 6 mg/kg bw/day
LOAEL : 18 mg/kg bw/day
Application Route : Oral
Exposure time : 90 d
Target Organs : Nervous system

Species : Rat
NOAEL : 16.7 mg/kg bw/day
LOAEL : 33.7 mg/kg bw/day
Application Route : Oral
Exposure time : 90 d
Target Organs : Nervous system

Species : Dog
NOAEL : 6 mg/kg
LOAEL : 18 mg/kg
Application Route : Oral
Exposure time : 1 yr
Dose : 3, 6, 18, 33 mg/kg/d
Method : EPA OPP 83-1
Symptoms : Tremors

Species : Rat
NOAEL : 4,5 mg/kg
Application Route : Oral
Exposure time : 2 yr

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Dose : 0.6, 4.5, 30, 45 mg/kg/d
Target Organs : Liver

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Species : Rat, male and female
NOAEL : 500 mg/kg
Application Route : Oral
Method : OECD Test Guideline 407
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : 50 mg/m3
Application Route : Inhalation
Method : OECD Test Guideline 412
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : > 1.000 mg/kg
Application Route : Dermal
Method : OECD Test Guideline 410
Remarks : Based on data from similar materials

2-ethylhexan-1-ol:

Species : Rat
: 250 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Method : OECD Test Guideline 408

Aspiration toxicity

Based on available data, the classification criteria are not met.

Components:

Zeta cypermethrin:

The substance does not have properties associated with aspiration hazard potential.

Experience with human exposure

Components:

Zeta cypermethrin:

General Information : Symptoms: May cause paraesthesia

Further information

Product:

Remarks : Solvents may degrease the skin.

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Product:**

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 3.53 µg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia similis (Water flea)): 0,0036 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 0,0182 mg/l Exposure time: 96 h
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): 346,60 mg/kg Exposure time: 14 d
Toxicity to terrestrial organisms	:	(Coturnix japonica (Japanese quail)): 400 mg/kg Exposure time: 14 d (Apis mellifera (bees)): .045 Exposure time: 48 h

Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

Components:**oxydipropyl dibenzoate:**

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 3,7 mg/l Exposure time: 96 h Remarks: water accommodated fractions (WAF) NOEC (Pimephales promelas (fathead minnow)): 1,2 mg/l Exposure time: 96 h Remarks: water accommodated fractions (WAF)
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia): 19,3 mg/l End point: Immobilization Exposure time: 48 h GLP: yes
Toxicity to algae/aquatic plants	:	(Raphidocelis subcapitata (freshwater green alga)): 1,1 mg/l End point: Growth inhibition Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic)	:	NOEC (Daphnia magna (Water flea)): 2,2 mg/l End point: reproduction

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ic toxicity) Exposure time: 21 d
Remarks: water accommodated fractions (WAF)

Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Zeta cypermethrin:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,69 µg/l
Exposure time: 96 h

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 0,141 µg/l
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : EC50 (algae): > 1 mg/l
plants Exposure time: 72 h

Toxicity to fish (Chronic tox- : NOEC (Fish): 0,015 µg/l
icity) Exposure time: 21 d

Toxicity to daphnia and other : NOEC (Crustaceans): 0,01 µg/l
aquatic invertebrates (Chron- Exposure time: 21 d
ic toxicity)

Toxicity to soil dwelling or- : LC50 (worms): > 100 mg/kg
ganisms Exposure time: 14 d

Toxicity to terrestrial organ- : LD50 (Colinus virginianus (Bobwhite quail)): > 2.025 mg/kg
isms

NOEC (Colinus virginianus (Bobwhite quail)): 150 mg/kg
End point: Reproduction Test

LD50 (Apis mellifera (bees)): 0,059 µg/bee

LC50 (Apis mellifera (bees)): 0,033 µg/bee

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Toxicity to fish : LL50 (Marine species): 10.000 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

LL50 (Pimephales promelas (fathead minnow)): 1.000 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): > 1.000 mg/l
aquatic invertebrates Exposure time: 48 h

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Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC (activated sludge): 10.000 mg/l
Method: OECD Test Guideline 209
GLP: yes

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

2-ethylhexan-1-ol:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 17,1 - 28,2 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC10 (Desmodesmus subspicatus (green algae)): 3,2 mg/l
Exposure time: 72 h

EC50 (Desmodesmus subspicatus (green algae)): 11,5 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC50 (Anabaena flos-aquae (cyanobacterium)): 16,6 mg/l
Exposure time: 72 h

Persistence and degradability

Components:

oxydipropyl dibenzoate:

Biodegradability : Remarks: Expected to be biodegradable

Zeta cypermethrin:

Biodegradability : Result: Not readily biodegradable.

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Biodegradability : Result: Not readily biodegradable.

2-ethylhexan-1-ol:

Biodegradability : Result: Readily biodegradable.

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Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Can accumulate in aquatic organisms.
Remarks: No data available

Components:

Zeta cypermethrin:

Bioaccumulation : Remarks: Accumulation in aquatic organisms is expected.
Partition coefficient: n-octanol/water : log Pow: 5 - 6 (24 °C)

Benzenesulfonic acid, C10-16-alkyl derivs., calcium salts:

Partition coefficient: n-octanol/water : log Pow: 22,1

2-ethylhexan-1-ol:

Partition coefficient: n-octanol/water : log Pow: 2,9 (25 °C)

Mobility in soil

Components:

Zeta cypermethrin:

Distribution among environmental compartments : Remarks: immobile

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Components:

Zeta cypermethrin:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.

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Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : It is prohibited to reuse, bury, burn or sell packaging.

Washable packaging: Triple wash packs of less than 20 liters and pressure wash packs of 20 liters or more. Triple Wash (Manual Wash): Completely empty the contents of the package into the sprayer tank, keeping it in an upright position for 30 seconds; Add clean water to the package up to ¼ of its volume; Cover the package well and shake it for 30 seconds; Pour the wash water into the spray tank; Do this operation three times; Make the plastic or metal packaging unusable by perforating the bottom.

Pressure wash: Fit the empty package in the appropriate place of the funnel installed on the sprayer; Activate the mechanism to release the water jet; Direct the water jet to all the inside walls of the package, for 30 seconds; Wash water must be transferred to the sprayer tank; Make the plastic or metal packaging unusable by perforating the bottom. In both procedures, puncture the container at its base without damaging the label. Within a period of up to one year from the date of purchase, the user must return the empty packaging, with lid, to the establishment where the product was purchased or to the place indicated on the invoice, issued at the time of purchase. Activate the mechanism to release the water jet. Direct the water jet to all the inside walls of the package, for 30 seconds. Wash water must be transferred to the sprayer tank. Make the plastic or metal packaging unusable by perforating the bottom.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3351
Proper shipping name	:	PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Zeta-Cypermethrin) (Zeta-Cypermethrin)
Class	:	6.1
Subsidiary risk	:	3
Packing group	:	III
Labels	:	6.1 (3)
Environmentally hazardous	:	yes

IATA-DGR

UN/ID No.	:	UN 3351
Proper shipping name	:	Pyrethroid pesticide, liquid, toxic, flammable (Zeta-Cypermethrin) (Zeta-Cypermethrin)
Class	:	6.1

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Subsidiary risk : 3
Packing group : III
Labels : Toxic, Flammable Liquids
Packing instruction (cargo aircraft) : 663
Packing instruction (passenger aircraft) : 655

IMDG-Code

UN number : UN 3351
Proper shipping name : PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE (Zeta-Cypermethrin)()
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : 6.1 (3)
EmS Code : F-E, S-D
Marine pollutant : yes

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 3351
Proper shipping name : PYRETHROID PESTICIDE, LIQUID, TOXIC, FLAMMABLE, , WITH PFG = OR > THAN 23° C (Zeta-Cypermethrin) (Zeta-Cypermethrin)
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : 6.1 (3)
Hazard Identification Number : 63

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

Law No. 14,785 of December 27, 2023. Decree 4,074 of January 4, 2002 and its regulatory standards. ANTT Resolution No. 5,998/22 of November 3, 2022. This MSDS was prepared in accordance with the criteria of ABNT NBR 14725. The user is recommended to pay attention to local regulations.

National List of Carcinogenic Agents for Humans - (LINACH) : Not applicable

Brazil. List of chemicals controlled by the Federal Police : Not applicable

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

TCSI	: On the inventory, or in compliance with the inventory
TSCA	: Product contains substance(s) not listed on TSCA inventory.
AIIC	: Not in compliance with the inventory
DSL	: This product contains the following components that are not on the Canadian DSL nor NDSL. Zeta cypermethrin
ENCS	: Not in compliance with the inventory
ISHL	: Not in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory
TECI	: On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Revision Date	: 18.02.2025
Date format	: dd.mm.yyyy

Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA	: 8-hour, time-weighted average

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 Or-

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ganisation 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

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