

**Deltamethrin (5%) Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 07.12.2020
1.1	09.04.2021	7663887-00002	Date of first issue: 07.12.2020

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**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

Product name : Deltamethrin (5%) Formulation

**Manufacturer or supplier's details**

Company : Merck & Co., Inc

Address : 126 E. Lincoln Avenue  
Rahway, New Jersey U.S.A. 07065

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

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**2. HAZARDS IDENTIFICATION****GHS Classification**

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Skin irritation : Category 2

Serious eye damage : Category 1

Skin sensitisation : Category 1

Germ cell mutagenicity : Category 1B

Carcinogenicity : Category 1B

Reproductive toxicity : Category 2

Specific target organ toxicity - : Category 3  
single exposure

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

Specific target organ toxicity - : Category 2 (Central nervous system)  
repeated exposure  
(Inhalation)

Aspiration hazard : Category 1

Short-term (acute) aquatic : Category 1  
hazard

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Long-term (chronic) aquatic hazard : Category 1

**GHS-Labeling**

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.
- H336 May cause drowsiness or dizziness.
- H340 May cause genetic defects.
- H350 May cause cancer.
- H361fd Suspected of damaging fertility. Suspected of damaging 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.
- P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

- 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.
- P391 Collect spillage.

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

Vapours may form explosive mixture with air.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Pure substance/mixture : Mixture

**Components**

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Chemical name	CAS-No.	Classification	MAC value mg/m <sup>3</sup> / TSEL value	Concentration (% w/w)
Solvent naphtha (petroleum), light aromatic	64742-95-6	Flam. Liq.3; H226 Skin Irrit.2; H315 Muta.1B; H340 Carc.1B; H350 STOT SE3; H336 Asp. Tox.1; H304 Aquatic Acute2; H401 Aquatic Chronic2; H411	No data available	>= 30 - < 50
2-Methoxy-1-methylethyl acetate	108-65-6	Flam. Liq.3; H226 STOT SE3; H336	MPC-STEL: 10 mg/m <sup>3</sup> Class 4 - Low hazard Data Source: RU OEL	>= 20 - < 30
Benzenesulfonic acid, C10- 13-alkyl derivs., calcium salts	Not As- signed	Acute Tox.5; H303 Skin Irrit.2; H315 Eye Dam.1; H318 Aquatic Acute2; H401 Aquatic Chronic3; H412	No data available	>= 3 - < 10
2-Methyl-1-propanol	78-83-1	Flam. Liq.3; H226 Acute Tox.5; H303 Acute Tox.5; H313 Skin Irrit.2; H315 Eye Dam.1; H318 STOT SE3; H335, H336 Asp. Tox.2; H305	MPC-STEL: 10 mg/m <sup>3</sup> Class 3 - Moder- ately dangerous Data Source: RU OEL	>= 3 - < 10
deltamethrin (ISO)	52918-63-5	Acute Tox.3; H301 Acute Tox.3;	No data available	>= 2,5 - < 10

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			H331 Eye Irrit.2A; H319 Skin Sens.1; H317 Repr.2; H361fd STOT SE3; H335 STOT RE1; H372 (Central nerv- ous system, Immune sys- tem) STOT RE1; H372 (Central nerv- ous system) Aquatic Acute1; H400 Aquatic Chronic1; H410		
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For explanation of abbreviations see section 16.

#### 4. FIRST AID MEASURES

- |   |   |   |
|---|---|---|
| General advice  | : | In the case of accident or if you feel unwell, seek medical advice immediately.<br>When symptoms persist or in all cases of doubt seek medical advice.  |
| If inhaled  | : | If inhaled, remove to fresh air.<br>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.<br>Get medical attention.<br>Wash clothing before reuse.<br>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.<br>If easy to do, remove contact lens, if worn.<br>Get medical attention immediately.  |
| If swallowed  | : | If swallowed, DO NOT induce vomiting.<br>If vomiting occurs have person lean forward.<br>Call a physician or poison control centre immediately.<br>Rinse mouth thoroughly with water.<br>Never give anything by mouth to an unconscious person. |
| Most important symptoms and effects, both acute and delayed | : | Harmful if swallowed.<br>May be fatal if swallowed and enters airways.<br>Causes skin irritation.<br>May cause an allergic skin reaction.   |

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Causes serious eye damage.  
May cause drowsiness or dizziness.  
May cause genetic defects.  
May cause cancer.  
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.

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

**Flammable properties**

Flash point : 45 - 51 °C

Ignition temperature : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : Not applicable

Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during fire-fighting : Do not use a solid water stream as it may scatter and spread fire.  
Flash back possible over considerable distance.  
Vapours may form explosive mixtures with air.  
Exposure to combustion products may be a hazard to health.

Hazardous combustion products : Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Bromine compounds  
Sulphur oxides  
Metal oxides

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.

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Special protective equipment for firefighters : Evacuate area.  
In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

**6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.  
Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g. by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapours/mists with a water spray jet.  
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

**7. HANDLING AND STORAGE**

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.  
Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling : Do not get on skin or clothing.  
Do not breathe mist or vapours.  
Do not swallow.  
Do not get in eyes.  
Wash skin thoroughly after handling.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Non-sparking tools should be used.  
Keep container tightly closed.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Take precautionary measures against static discharges.

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- Do not eat, drink or smoke when using this product.  
 Take care to prevent spills, waste and minimize release to the environment.  
 See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Conditions for safe storage : Keep in properly labelled containers.  
 Store locked up.  
 Keep tightly closed.  
 Keep in a cool, well-ventilated place.  
 Store in accordance with the particular national regulations.  
 Keep away from heat and sources of ignition.
- Materials to avoid : Do not store with the following product types:  
 Strong oxidizing agents  
 Organic peroxides  
 Flammable solids  
 Pyrophoric liquids  
 Pyrophoric solids  
 Self-heating substances and mixtures  
 Substances and mixtures, which in contact with water, emit flammable gases  
 Explosives  
 Gases

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Data Source
2-Methoxy-1-methylethyl acetate	108-65-6	TWA	50 ppm 275 mg/m <sup>3</sup>	2000/39/EC
		STEL	100 ppm 550 mg/m <sup>3</sup>	2000/39/EC
		MPC-STEL (vapour and/or gas)	10 mg/m <sup>3</sup>	RU OEL
Further information: Class 4 - Low hazard				
2-Methyl-1-propanol	78-83-1	MPC-STEL (vapour and/or gas)	10 mg/m <sup>3</sup>	RU OEL
Further information: Class 3 - Moderately dangerous				
deltamethrin (ISO)	52918-63-5	TWA	15 µg/m <sup>3</sup> (OEB 3)	Internal
Further information: DSEN, Skin				
		Wipe limit	150 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

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

Minimize open handling.

Use explosion-proof electrical, ventilating and lighting equipment.

**Personal protective equipment**

- |                          |   |  |
|--------------------------|---|--|
| Respiratory protection   | : | If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.   |
| Filter type              | : | Combined particulates and organic vapour type  |
| Hand protection          | : |  |
| Material                 | : | Chemical-resistant gloves  |
| Remarks                  | : | Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.   |
| Eye protection           | : | Wear safety glasses with side shields or goggles.<br>If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.<br>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.<br>Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.<br>Use appropriate degowning techniques to remove potentially contaminated clothing.  |
| Hygiene measures         | : | If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.<br>When using do not eat, drink or smoke.<br>Contaminated work clothing should not be allowed out of the workplace.<br>Wash contaminated clothing before re-use.<br>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          | : | yellow            |
| Odour           | : | No data available |
| Odour Threshold | : | No data available |
| pH              | : | 3 - 5             |



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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 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

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**10. STABILITY AND REACTIVITY**

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.

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Possibility of hazardous reactions	:	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 exposure :

- Inhalation
- Skin contact
- Ingestion
- Eye contact

**Acute toxicity**

Harmful if swallowed.

**Product:**

Acute oral toxicity	:	Acute toxicity estimate: 1.269 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate: > 10 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5.000 mg/kg Method: Calculation method

**Components:****Solvent naphtha (petroleum), light aromatic:**

Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 5,61 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	:	LD50 (Rabbit): > 2.000 mg/kg

**2-Methoxy-1-methylethyl acetate:**

Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg
Acute inhalation toxicity	:	LC0 (Rat): 9,48 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity	:	LD50 (Rat): > 5.000 mg/kg

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

Acute oral toxicity	:	LD50 (Rat): 4.445 mg/kg
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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): 3.350 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 24,6 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): 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  
  
LD50 (Rat): > 800 mg/kg

Acute toxicity (other routes of administration) : LD50 (Rat): 2,5 mg/kg  
Application Route: Intravenous  
  
LD50 (Mouse): 10 mg/kg  
Application Route: Intraperitoneal

**Skin corrosion/irritation**

Causes skin irritation.

**Components:****Solvent naphtha (petroleum), light aromatic:**

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

**2-Methoxy-1-methylethyl acetate:**

Species : Rabbit  
Result : No skin irritation

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

Species : Rabbit

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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:****Solvent naphtha (petroleum), light aromatic:**

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

**2-Methoxy-1-methylethyl acetate:**

Species	:	Rabbit
Result	:	No eye irritation

**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.

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**Components:****Solvent naphtha (petroleum), light aromatic:**

Test Type	: Buehler Test
Exposure routes	: Skin contact
Species	: Guinea pig
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	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Result	: negative
Remarks	: Based on data from similar materials

**deltamethrin (ISO):**

Test Type	: Maximisation Test
Exposure routes	: Dermal
Species	: Guinea pig
Result	: negative
	: Human repeat insult patch test (HRIPT)
	: Dermal
	: Humans
	: positive

**Germ cell mutagenicity**

May cause genetic defects.

**Components:****Solvent naphtha (petroleum), light aromatic:**

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

	Test Type: In vitro mammalian cell gene mutation test
	Result: positive

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Genotoxicity in vivo : Test Type: Sister chromatid exchange analysis in spermatogonia  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: positive

Germ cell mutagenicity - Assessment : Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

**2-Methoxy-1-methylethyl acetate:**

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

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Result: negative  
Remarks: Based on data from similar materials

**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:**

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

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

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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**

May cause cancer.

**Components:****Solvent naphtha (petroleum), light aromatic:**

Species : Mouse  
Application Route : Skin contact  
Exposure time : 2 Years  
Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

**2-Methoxy-1-methylethyl acetate:**

Species : Rat  
Application Route : inhalation (vapour)  
Exposure time : 2 Years  
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  
Result : positive  
Target Organs : Lymph nodes

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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:****Solvent naphtha (petroleum), light aromatic:**

Effects on fertility	: Test Type: Reproduction/Developmental toxicity screening test
	Species: Rat
	Application Route: inhalation (vapour)
	Result: negative

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

**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
	Result: negative
	Remarks: Based on data from similar materials

Effects on foetal development	: 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 development	: Test Type: Embryo-foetal development
	Species: Rat
	Application Route: inhalation (vapour)
	Method: OECD Test Guideline 414



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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 weight  
 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 development

: Test Type: Development  
 Species: Mouse  
 Application Route: oral (gavage)  
 Developmental Toxicity: LOAEL: 1 mg/kg body weight  
 Result: Skeletal malformations  
 Remarks: Maternal toxicity observed.

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 - Assessment

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

**STOT - single exposure**

May cause drowsiness or dizziness.

**Components:****Solvent naphtha (petroleum), light aromatic:**

Assessment : May cause drowsiness or dizziness.

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**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.

Exposure routes : inhalation (dust/mist/fume)  
Target Organs : Central nervous system  
Assessment : Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Components:****Solvent naphtha (petroleum), light aromatic:**

Species : Rat  
LOAEL : 500 mg/kg  
Application Route : Ingestion  
Exposure time : 28 Days

**2-Methoxy-1-methylethyl acetate:**

Species : Rat  
NOAEL : > 1.000 mg/kg  
Application Route : Ingestion  
Exposure time : 41 - 45 Days  
Method : OECD Test Guideline 422

Species : Mouse  
NOAEL : 1,62 mg/l  
Application Route : inhalation (vapour)  
Exposure time : 2 yr  
Remarks : Based on data from similar materials

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Species	: Rabbit
NOAEL	: > 1.838 mg/kg
Application Route	: Skin contact
Exposure time	: 90 Days
Remarks	: Based on data from similar materials

**2-Methyl-1-propanol:**

Species	: Rat
NOAEL	: > 1.450 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days
Method	: OECD Test Guideline 408

**deltamethrin (ISO):**

Species	: Rat, male and female
NOAEL	: 1 mg/kg
LOAEL	: 2,5 mg/kg
Application Route	: Oral
Exposure time	: 13 Weeks
Target Organs	: Nervous system
Symptoms	: hyperexcitability

Species	: Rat
LOAEL	: 3 mg/m <sup>3</sup>
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
Symptoms	: Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Salivation

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.

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**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:****Solvent naphtha (petroleum), light aromatic:**

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.

**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, Nausea, Vomiting, Dizziness, tingling, Sweating, muscle twitching, Blurred vision, Fatigue, anorexia, Allergic reactions
Ingestion	:	Symptoms: muscle pain, Small pupils

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**12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Solvent naphtha (petroleum), light aromatic:**

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 8,2 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 4,5 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (microalgae)): 3,1 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201  NOELR (Pseudokirchneriella subcapitata (microalgae)): 0,5 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia magna (Water flea)): 2,6 mg/l  
 Exposure time: 21 d  
 Test substance: Water Accommodated Fraction  
 Method: OECD Test Guideline 211

**2-Methoxy-1-methylethyl acetate:**

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

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (algae)): > 1.000 mg/l  
 Exposure time: 96 h  
 Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 100 mg/l  
 Exposure time: 21 d  
 Method: OECD Test Guideline 211

Toxicity to microorganisms : EC10: > 1.000 mg/l  
 Exposure time: 0,5 h

**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 toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): > 0,1 - 1 mg/l  
 Exposure time: 72 d  
 Remarks: Based on data from similar materials

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): > 1 mg/l  
Exposure time: 21 d  
Remarks: Based on data from similar materials

**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 (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 20 mg/l  
Exposure time: 21 d

**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 toxicity) : 1.000.000

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0,000022 mg/l  
Exposure time: 36 d

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NOEC (Pimephales promelas (fathead minnow)): 0,000017 mg/l  
Exposure time: 260 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0,0041 µg/l  
Exposure time: 21 d  
M-Factor (Chronic aquatic toxicity) : 1.000.000

**Persistence and degradability****Components:****Solvent naphtha (petroleum), light aromatic:**

Biodegradability : Result: Inherently biodegradable.  
Biodegradation: 94 %  
Exposure time: 25 d

**2-Methoxy-1-methylethyl acetate:**

Biodegradability : Result: Readily biodegradable.  
Biodegradation: 90 %  
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: 70 - 80 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

**deltamethrin (ISO):**

Stability in water : Hydrolysis: 0 % (30 d)

**Bioaccumulative potential****Components:****2-Methoxy-1-methylethyl acetate:**

Partition coefficient: n-octanol/water : log Pow: 1,2

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

Partition coefficient: n-octanol/water : log Pow: 2,89

**2-Methyl-1-propanol:**

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

**deltamethrin (ISO):**

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)  
 Bioconcentration factor (BCF): 1.800

Partition coefficient: n-octanol/water : log Pow: 4,6

**Mobility in soil****Components:****deltamethrin (ISO):**

Distribution among environmental compartments : log Koc: 7,2

**Other adverse effects**

No data available

**Hygienic standards:**

(Allowable concentration in air, water, including fishery waters, soil)

Components	Air	Water	Soil	Data Source
Solvent naphtha (petroleum), light aromatic 64742-95-6	TSEL value: 0,2 mg/m <sup>3</sup>	Maximum Permissible Concentration 0,05 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 3		List 2 List 5
2-Methoxy-1-methylethyl acetate 108-65-6	MPC maximum value: 0,5 mg/m <sup>3</sup> Limiting health hazard indicator: reflective Class 4 - low hazard			List 1
2-Methyl-1-propanol 78-83-1	MPC maximum value: 0,1 mg/m <sup>3</sup> Limiting health hazard indicator: reflective Class 4 - low hazard	Maximum Allowable Concentration: 0,15 mg/l Limiting health hazard indicator: sanitary-toxicological Hazard class: Class 2 - highly dangerous Maximum Permissible Concentration 2,4 Milligrams per cubed decimeter Limiting health		List 1 List 4 List 5



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		hazard indicator: toxic Hazard class: 4		
deltamethrin (ISO) 52918-63-5	TSEL value: 0,003 mg/m3	Maximum Permissible Concentration 0 Milligrams per cubed decimeter Limiting health hazard indicator: toxic Hazard class: 1		List 2 List 5

List 1: GN 2.1.6.3492-17 Maximum permissible concentrations (MPC) of pollutants in the atmospheric air of urban and rural settlements

List 2: GN 2.1.6.2309-07 Tentative safe exposure level (TSEL) of pollutants in the air of settlements

List 4: GN 2.1.5.1315-03 Maximum Allowable Concentrations (MAC) of Chemical Substances Contained in Water of Water Bodies for Economic-Potable and Social-Domestic Water Use

List 5: Order of the Russian Federal Fisheries Agency "Standards of maximum permissible concentrations of harmful substances in fishery water bodies"

## 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.  
 Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
 Empty containers retain residue and can be dangerous.  
 Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.  
 If not otherwise specified: Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**ADR**

UN number : UN 1993  
 Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
 (Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-methylethyl acetate)  
 Class : 3  
 Packing group : III  
 Labels : 3  
 Hazard Identification Number : 30  
 Tunnel restriction code : (D/E)  
 Environmentally hazardous : yes

**IATA-DGR**

UN/ID No. : UN 1993  
 Proper shipping name : Flammable liquid, n.o.s.  
 (Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-

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methylethyl acetate)  
Class : 3  
Packing group : III  
Labels : Flammable Liquids  
Packing instruction (cargo aircraft) : 366  
Packing instruction (passenger aircraft) : 355

**IMDG-Code**

UN number : UN 1993  
Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
(Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-methylethyl acetate, deltamethrin (ISO))  
Class : 3  
Packing group : III  
Labels : 3  
EmS Code : F-E, S-E  
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.

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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

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**16. OTHER INFORMATION**

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

**Full text of H-Statements**

H226 Flammable liquid and vapour.  
H301 Toxic if swallowed.  
H303 May be harmful if swallowed.  
H304 May be fatal if swallowed and enters airways.

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H305	May be harmful if swallowed and enters airways.
H313	May be harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H400	Very toxic to aquatic life.
H401	Toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

## Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Asp. Tox.	: Aspiration hazard
Carc.	: Carcinogenicity
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Muta.	: Germ cell mutagenicity
Repr.	: Reproductive toxicity
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
STOT RE	: Specific target organ toxicity - repeated exposure
STOT SE	: Specific target organ toxicity - single exposure
2000/39/EC	: Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
RU OEL	: Hygienic standard GN 2.2.5.3532-18 "Maximum allowed concentration (MAC) of harmful substances in the air of the working zone"
2000/39/EC / TWA	: Limit Value - eight hours
2000/39/EC / STEL	: Short term exposure limit
RU OEL / MPC-STEL	: Maximum Permissible Concentration - Short Term Exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on

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Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Further information**

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

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.

RU / EN