

**TO CAUSE A HAZARD IN THE USE,  
STORAGE OR DISPOSAL OF THIS  
SUBSTANCE IS AN OFFENCE.**

**SC Formulation: Suspension Concentrate**  
**A systemic fungicide for the  
preventative control of powdery  
mildew and early blight in tomatoes.**

**Chemical group:**

Pydiflumetofen is a pyrazole carboxamide.  
Difenoconazole is a triazole.

**Shelf Life:** 2 years from date of manufacture  
if kept in the original unopened container  
under constant cool and dry conditions.

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Group Company

Product names marked ® or ™, the ALLIANCE FRAME,  
the SYNGENTA Logo and the PURPOSE ICON  
are Trademarks of a Syngenta Group Company

 **Miravis Duo**  
An ADEPIDYN™ brand fungicide

**syngenta**

Reg. No.  
**22-B-61-32-B-108-1**

Net content:  
**250 ml**



HARMFUL IF SWALLOWED

GROUP 7 3 FUNGICIDES

**Composition (mass/volume)**  
Pydiflumetofen (ADEPIDYN™).....75 g/litre  
Difenoconazole (Triazole).....125 g/litre  
Inert ingredients.....to 1 litre

**Before using this product, read  
and understand the entire label.**

**Registered by:**

Syngenta Agro AG, 32 Sandringham Drive,  
Alexandra Park, Harare.

Tel.: 08677005432 / 08677005434

**Distributed by:**

**Emergency Call Number:**

Swiss Toxicological Information Centre (24 h)  
+41 44 251 51 51

**Manufacturer:**

Syngenta Crop Protection AG, Basel,  
Switzerland

**Date of manufacture/Batch No:** See inkjet  
print on the neck of the bottle.



**CAUTION**



20mm BOOKLET SPINE SHOULD BE KEPT VARNISH FREE

L11090721 ZIMB/07A PPE 4164724

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## PRECAUTIONS

- Handle with care; avoid splashing / contact; poisonous by swallowing inhalation and contact with the skin.
  - WEAR suitable personal protective clothing (**PPE**) i.e., boots, gloves and face protection for mixing and boots and overalls, hat, and solid footwear for spraying.
  - **DO NOT** eat, drink, or smoke while using this product.
  - **MAY BE DANGEROUS TO LIVESTOCK, PETS, FISH, BIRDS, AND BEES.**
  - **DO NOT CONTAMINATE DRINKING POOLS, DAMS, RIVERS, WATERWAYS AND OTHER WATER SUPPLIES.**
  - Store in original container, in a cool, dry place **UNDER LOCK and KEY.**
  - **KEEP OUT OF REACH OF CHILDREN.**
  - **KEEP APART FROM FOOD, FOODSTUFFS**, seeds, and fertilizers.
  - Use only on the crops for which the product is registered.
  - Avoid drift onto adjacent crops or soil.
- ENVIRONMENT AND WILDLIFE:**
- **DO NOT** apply under weather conditions or from spraying equipment that may cause spray to drift onto nearby susceptible plants / crops, cropping lands or pastures. **DO NOT** contaminate dams, rivers or streams with the product or used container. **DO NOT** spray across open bodies of water.

## SYMPTOMS OF POISONING

- Non-specific but may include nausea, vomiting, dizziness and headaches. Diarrhoea may also occur with associated symptoms.

## FIRST AID

**General advice:** Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control centre or physician, or going for treatment.

- **Eye splashes:** Immediately hold eyelids apart and pour in a gentle stream of water for 10-15 minutes. Go to a doctor.
- **Skin contact:** Immediately remove contaminated clothing; wash affected skin with plenty of water. Wash contaminated clothing before re-use.
- **If product is swallowed, DO NOT** make the person vomit. Take the person and this container to a doctor at once.
- **If inhaled:** Move victim to fresh air.

## NOTE TO PHYSICIAN

- No specific antidote is known.
- Perform gastric lavage, taking care to prevent aspiration of gastric contents. Then treat symptomatically.

## DISPOSAL OF EMPTY CONTAINER

Rinse the container 3 times with a volume of water equal to at least 25% of that of the container. Add the rinsate to the contents

of the spray tank. Destroy the empty container by perforation and flattening. Place it in a secure disposal area and offer it for recycling. **DO NOT** use it for any other purpose.

### **DECONTAMINATION OF SPRAYER**

After use, clean the sprayer thoroughly and ensure that all traces of MIRAVIS™ DUO are removed. Make use of the following method: (a) Drain tank and then rinse tank, sprayer boom and hoses with clean water for at least 10 minutes. (b) Fill tank with clean water and add to it 1,0 litre household bleach (5%) or 1,5 litres household bleach (3,5%) per 200 litres of water. Rinse hoses and sprayer boom and leave in the tank for 15 minutes whilst agitating. Drain through the nozzle outlets. (c) Repeat step (b) and thereafter, rinse thoroughly with clean water and dispose of the wash water at a site designated for the disposal of pesticides.

### **COMPATIBILITY**

If MIRAVIS™ DUO is used in tank mix combinations, mix small quantities of the chemicals with water to test the physical compatibility of the components. The products should be added separately to the bulk water in the spray tank. Add these together while agitating and check for any signs of incompatibility e.g. flocculation, etc. In this instance, full cognizance must be taken of all warnings, precautions and directions for use on that label.

### **WARRANTY**

The user bears the risk for damage resulting from factors beyond the manufacturer's control. All recommendations for use of the

fungicide are based on the current state of the manufacturer's knowledge. Since the manufacturer cannot control the farmer's choice of fungicide, its application, use, or storage of the product, or other agronomic practices, the manufacturer cannot accept responsibility therefore.

Resistant strains of fungi may develop or may exist against which fungicides may be less effective. Since the occurrence of such strains cannot be forecast, neither the manufacturer nor its distributors can assume responsibility for any loss or damage caused by failure to control resistant fungi.

## PRODUCT INFORMATION

### Mode of Action

MIRAVIS™ DUO is a systemic fungicide for the preventative control of foliar diseases in various crops. It combines the action of a new active ingredient pydiflumetofen (ADEPIDYN™), from the chemical group of carboxamides, with difenoconazole, from the chemical group of triazoles. The mixture of both active ingredients determines a combined action, blocking the respiratory process and ergosterol synthesis of fungi. These qualities ensure a broad spectrum of control, reducing the risk of emergence of resistant strains.

**Pydiflumetofen** (ADEPIDYN™) is a broad-spectrum fungicide belonging to chemical group 7; inhibitors of succinate dehydrogenase or SDHI (FRAC). This inhibits Complex II of respiration where SDHI acts. It does not possess cross-resistance with triazoles or strobilurines, for which the mixture with these chemicals is recommended for a better handling of resistance.

It has prolonged residual effect, ensuring the protection of the leaves, delaying their senescence and keeping them green for a longer time, managing to express the maximum potential of the crop.

**Difenoconazole** is a preventative fungicide belonging to chemical group 3; inhibitors of membrane sterol biosynthesis (DMI) (FRAC). It significantly inhibits the subcuticular development of the mycelium of the fungi and prevents the development of the symptoms of the diseases. It has local systemic properties and translaminar capacity.

MIRAVIS™DUO degrades quickly in the environment, ensuring that there are no negative effects on seed germination and the establishment of successive crops in rotation.

#### **Resistance Management:**

For resistance management, MIRAVIS™ DUO is classified as a group code 7 and 3 fungicides. Any fungus population may contain individuals naturally resistant to MIRAVIS™ DUO and other group code 7 and 3 fungicides. The resistant individuals can eventually dominate the fungus population if these fungicides are used repeatedly and exclusively in programs. These resistant fungi may not be controlled by MIRAVIS™ DUO or any other group code 7 and 3 fungicides. As the product owner cannot foresee the development of resistance, the company assumes no liability for any damage or loss resulting from the lack of activity of MIRAVIS™ DUO against these possible resistant strains.

To delay fungicide resistance:

- Avoid the exclusive repeated use of fungicides from the same fungicide group code. Alternate or tank mix with products from different fungicide group codes.

- MIRA-VIS™ DUO is an ideal solution in this case, since it contains active ingredients from two different mode of actions (group 7 and 3).
- Refer to individual product labels when alternating products or when using tank mixtures.
- Integrate other control methods (chemical, cultural, biological) into disease control programs.
- For specific information on resistance management, contact the registration holder of this product (Syngenta Agro AG) or visit the FRAC website at <http://www.frac.info/frac/index.html>.

#### **DIRECTIONS FOR USE**

Use only as indicated.

Thorough, uniform coverage is essential for effective disease control.

#### **For safety when mixing:**

- Wear gloves, boots and eye protection (at least glasses). Undiluted MIRA-VIS™ DUO can irritate your eyes. If you get it in your eyes wash it out at once. If you spill it on your clothes, change and wash them immediately.
- Triple rinse empty container and pour washings into sprayer tank.

#### **For safety when spraying:**

- As with all chemicals avoid contact with the spray.
- Wear overalls and boots.

**For safety after spraying:**

- Wash yourself. Change and wash your work clothes.
- Destroy empty rinsed container by cutting or crushing then place in secure disposal site – **DO NOT** use it for any other purpose.
- Wash sprayer thoroughly. Dispose of wash water in a safe manner.

**Mixing instructions:**

MIRAVIS™ DUO is a suspension concentrate (SC) which must be diluted in water. For proper preparation, observe the following

**Instructions:**

Verify the proper functioning and correct calibration of the equipment before use. Half fill the spray tank with clean water - shake the MIRAVIS™ DUO container thoroughly, immediately before use. Add the required volume of MIRAVIS™ DUO to the spray tank. Replace cap after pouring. If tank mixtures are made, add the products to the tank in the following sequence (as applicable): buffers, water dispersible granule or bag, wettable powder, suspension concentrate (MIRAVIS™ DUO and other suspension concentrates), emulsifiable concentrate, soluble liquid formulations then adjuvants. Fill the spray tank with water to the required level while maintaining agitation to ensure thorough mixing of the spray mixture before spraying commences. Maintain agitation while spraying. Prepared spray mixture must not be left in the spray tank for more than six hours, as effectiveness may be reduced due to degradation of the product.



**General use directions:**

MIRAVIS™ DUO must be applied as a full cover preventive spray for the control of the disease mentioned. When applying MIRAVIS™ DUO, ensure good coverage of the leaves of the crop to be protected. Check that the spray equipment is in good working condition and that the nozzles are held at a height that will ensure complete spray coverage. Ensure good coverage of the whole plant (the stems and both surfaces of the leaves) by using enough water and spraying equipment that can maintain high pressure. Avoid evaporation and drift.

**Re-entry period:**

DO NOT enter treated area until spray deposit has dried unless wearing personal protective equipment.

**Dosage rates and Recommendations**

CROP / DISEASE	DOSAGE ml/Ha	PREHARVEST INTERVAL (PHI)*
TOMATO Early blight ( <i>Alternaria solani</i> ) Powdery mildew ( <i>Leveillula taurica</i> or <i>Oidium neolycopersici</i> )	Ground foliar application 75 - 90 ml/100 litres water (750 - 900 ml/ha)	1 day

## REMARKS:

- Always apply as a preventative spray application when weather conditions favour disease development.
- Repeat at 7-day intervals. Use the higher rate in high disease pressure conditions and environments.
- Do not spray more than three (3) to four (4) times per crop cycle/season.
- For programs in which tank mixes are used, the number of MIRAVID™ DUO containing applications should not be more than 50% of the total number of fungicide applications per crop cycle/season.
- For use in rotations, apply two (2) consecutive applications per block before alternating with fungicides with a different mode of action.
- Alternate MIRAVID™ DUO spray applications with fungicides with a different mode of action.
- Ground foliar application: 200 - 1000 litres water/ha

**\*NOTE:** Compliance with these withholding periods will ensure that residues do not exceed local Maximum Residue Limits, but the import tolerances of other countries might possibly be exceeded. If the crop to be treated is intended for export, consult the relevant importer or exporting body regarding the use of this product, Maximum Residue Limits and recommended preharvest intervals.

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## MIRAVIS DUO

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### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1 Product identifier

Trade name : MIRAVIS DUO  
Design code : A20259G

#### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Fungicide

#### 1.3 Details of the supplier of the safety data sheet

Company : Syngenta Crop Protection AG  
Rosentalstrasse 67, Postfach  
CH-4002 Basel  
Switzerland  
  
Telephone : +41 61 323 11 11  
Telefax : +41 61 323 12 12  
E-mail address of person responsible for the SDS : sds.ch@syngenta.com

#### 1.4 Emergency telephone number

Emergency telephone number : +44 1484 538444

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

#### 2.2 Label elements

##### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms : 

Signal word : Warning

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- Hazard statements : H302 Harmful if swallowed.  
H410 Very toxic to aquatic life with long lasting effects.
- Supplemental Hazard Statements : EUH208 Contains 1,2-benzisothiazol-3-one.  
May produce an allergic reaction.
- EUH401 To avoid risks to human health and the environment, comply with the instructions for use.
- Precautionary statements : **Prevention:**  
P264 Wash skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.
- Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
P391 Collect spillage.
- Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### Hazardous components which must be listed on the label:

difenoconazole

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
difenoconazole	119446-68-3	Acute Tox. 4; H302 Eye Irrit. 2; H319 Aquatic Acute 1; H400	>= 10 - < 20

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		Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	
pydiflumetofen	1228284-64-7	Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	$\geq 2.5 - < 10$
1,2-benzisothiazol-3(2H)-one	2634-33-5 220-120-9 613-088-00-6 01-2120761540-60	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 2; H411  M-Factor (Acute aquatic toxicity): 1  specific concentration limit Skin Sens. 1; H317 $\geq 0,05 \%$	$\geq 0.025 - < 0.05$
bronopol (INN)	52-51-7 200-143-0 603-085-00-8	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410  M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 1	$\geq 0.025 - < 0.1$

For explanation of abbreviations see section 16.

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### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- General advice : Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.
- If inhaled : Move the victim to fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Keep patient warm and at rest.  
Call a physician or poison control centre immediately.
- In case of skin contact : Take off all contaminated clothing immediately.  
Wash off immediately with plenty of water.  
If skin irritation persists, call a physician.  
Wash contaminated clothing before re-use.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Remove contact lenses.  
Immediate medical attention is required.
- If swallowed : If swallowed, seek medical advice immediately and show this container or label.  
Do NOT induce vomiting.

#### 4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Nonspecific  
No symptoms known or expected.

#### 4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : There is no specific antidote available.  
Treat symptomatically.
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### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

- Suitable extinguishing media : Extinguishing media - small fires  
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.  
Extinguishing media - large fires  
Alcohol-resistant foam  
or  
Water spray
- Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

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### 5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

### 5.3 Advice for firefighters

Special protective equipment for firefighters : Wear full protective clothing and self-contained breathing apparatus.

Further information : Do not allow run-off from fire fighting to enter drains or water courses.  
Cool closed containers exposed to fire with water spray.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Refer to protective measures listed in sections 7 and 8.

### 6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.  
Do not flush into surface water or sanitary sewer system.  
If the product contaminates rivers and lakes or drains inform respective authorities.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : 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).  
Clean contaminated surface thoroughly.  
Clean with detergents. Avoid solvents.  
Retain and dispose of contaminated wash water.

### 6.4 Reference to other sections

For disposal considerations see section 13., Refer to protective measures listed in sections 7 and 8.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : No special protective measures against fire required.  
Avoid contact with skin and eyes.  
When using do not eat, drink or smoke.  
For personal protection see section 8.

### 7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out

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of the reach of children. Keep away from food, drink and animal feedingstuffs.

### 7.3 Specific end use(s)

Specific use(s)

: For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
difenoconazole	119446-68-3	TWA	5 mg/m <sup>3</sup>	Syngenta
pydiflumetofen	1228284-64-7	TWA	5 mg/m <sup>3</sup>	Syngenta

#### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
propane-1,2-diol	Workers	Inhalation	Long-term systemic effects	168 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	10 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term systemic effects	30 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	10 mg/m <sup>3</sup>
1,2-benzisothiazol-3(2H)-one	Workers	Inhalation	Long-term systemic effects	6.81 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	0.966 mg/kg
	Consumers	Inhalation	Long-term systemic effects	1.2 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	0.345 mg/kg
bronopol (INN)	Workers	Inhalation	Long-term systemic effects	3.5 mg/m <sup>3</sup>
	Workers	Inhalation	Acute systemic effects	10.5 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	2.5 mg/m <sup>3</sup>
	Workers	Inhalation	Acute local effects	2.5 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	2 mg/kg
	Workers	Dermal	Acute systemic effects	6 mg/kg
	Workers	Dermal	Long-term local effects	0.008 mg/cm <sup>2</sup>



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	Workers	Dermal	Acute local effects	0.008 mg/cm <sup>2</sup>
	Consumers	Inhalation	Long-term systemic effects	0.6 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute systemic effects	1.8 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	0.6 mg/m <sup>3</sup>
	Consumers	Inhalation	Acute local effects	0.6 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	0.7 mg/kg
	Consumers	Dermal	Acute systemic effects	2.1 mg/kg
	Consumers	Dermal	Long-term local effects	0.004 mg/cm <sup>2</sup>
	Consumers	Dermal	Acute local effects	0.004 mg/cm <sup>2</sup>
	Consumers	Oral	Long-term systemic effects	0.18 mg/kg
	Consumers	Oral	Acute systemic effects	0.5 mg/kg

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
propane-1,2-diol	Fresh water	260 mg/l
	Marine water	26 mg/l
	Intermittent use/release	183 mg/l
	Sewage treatment plant	20000 mg/l
	Marine sediment	57.2 mg/kg
	Fresh water sediment	572 mg/kg
	Soil	50 mg/kg
1,2-benzisothiazol-3(2H)-one	Fresh water	0.00403 mg/l
	Marine water	0.000403 mg/l
	Sewage treatment plant	1.03 mg/l
	Fresh water sediment	0.0499 mg/kg
	Marine sediment	0.00499 mg/kg
	Freshwater - intermittent	0.0011 mg/l
	Marine water - intermittent	0.000110 mg/l
bronopol (INN)	Soil	3 mg/kg
	Fresh water	0.01 mg/l
	Marine water	0.001 mg/l
	Freshwater - intermittent	0.003 mg/l
	Sewage treatment plant	0.43 mg/l
	Fresh water sediment	0.041 mg/kg
	Marine sediment	0.003 mg/kg
Soil	0.5 mg/kg	

## 8.2 Exposure controls

### Engineering measures

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

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Maintain air concentrations below occupational exposure standards.  
Where necessary, seek additional occupational hygiene advice.

### Personal protective equipment

- Eye protection : No special protective equipment required.  
Hand protection
- Remarks : No special protective equipment required.  
Skin and body protection : No special protective equipment required.  
Select skin and body protection based on the physical job requirements.
- Respiratory protection : No personal respiratory protective equipment normally required.  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Protective measures : The use of technical measures should always have priority over the use of personal protective equipment.  
When selecting personal protective equipment, seek appropriate professional advice.
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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- Physical state : liquid  
Colour : white
- Odour : No data available  
Odour Threshold : No data available
- Melting point/range : No data available
- Boiling point/boiling range : No data available
- Flammability : No data available
- Upper explosion limit / Upper flammability limit : No data available
- Lower explosion limit / Lower flammability limit : No data available
- Flash point : Method: Seta closed cup  
does not flash
- Auto-ignition temperature : > 650 °C
- Decomposition temperature  
Decomposition temperature : No data available

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pH : 6 - 8  
Concentration: 1 % w/v  
  
5 - 10  
Concentration: 100 % w/v

Viscosity  
Viscosity, dynamic : No data available  
  
Viscosity, kinematic : No data available

Solubility(ies)  
Water solubility : No data available  
Solubility in other solvents : No data available

Partition coefficient: n-octanol/water : No data available  
Vapour pressure : No data available

Density : 1.09 g/cm<sup>3</sup> (20 °C)

Relative vapour density : No data available

Particle characteristics  
Particle size : No data available

### 9.2 Other information

Explosives : Not explosive  
  
Oxidizing properties : The substance or mixture is not classified as oxidizing.  
  
Evaporation rate : No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

None reasonably foreseeable.

### 10.2 Chemical stability

Stable under normal conditions.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

### 10.4 Conditions to avoid

Conditions to avoid : No decomposition if used as directed.

### 10.5 Incompatible materials

Materials to avoid : None known.

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### 10.6 Hazardous decomposition products

Hazardous decomposition products : No hazardous decomposition products are known.

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## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Information on likely routes of exposure : Ingestion  
Inhalation  
Skin contact  
Eye contact

#### Acute toxicity

##### Product:

Acute oral toxicity : LD50 (Rat, female): 1,098 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 4.96 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Highest attainable concentration

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

##### Components:

##### **difenoconazole:**

Acute oral toxicity : LD50 (Rat, male and female): 1,453 mg/kg  
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): > 3,300 mg/m<sup>3</sup>  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,010 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

##### **pydiflumetofen:**

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.11 mg/l  
Exposure time: 4 h

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Test atmosphere: dust/mist  
Assessment: The component/mixture is minimally toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

### **1,2-benzisothiazol-3(2H)-one:**

Acute oral toxicity : LD50 (Rat, male): 670 mg/kg

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity

### **bronopol (INN):**

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Acute dermal toxicity : Assessment: The component/mixture is moderately toxic after single contact with skin.

### **Skin corrosion/irritation**

#### **Product:**

Species : Rabbit  
Result : No skin irritation

#### **Components:**

##### **difenoconazole:**

Species : Rabbit  
Result : No skin irritation

##### **pydiflumetofen:**

Species : Rabbit  
Result : No skin irritation

##### **1,2-benzisothiazol-3(2H)-one:**

Species : Rabbit  
Result : Mild skin irritation

##### **bronopol (INN):**

Result : Irritating to skin.

### **Serious eye damage/eye irritation**

#### **Product:**

Species : Rabbit  
Result : No eye irritation

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### Components:

#### **difenoconazole:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 7 days

#### **pydiflumetofen:**

Species : Rabbit  
Result : No eye irritation

#### **1,2-benzisothiazol-3(2H)-one:**

Species : Rabbit  
Result : Risk of serious damage to eyes.

#### **bronopol (INN):**

Result : Risk of serious damage to eyes.

### **Respiratory or skin sensitisation**

#### Product:

Test Type : mouse lymphoma cells  
Species : Mouse  
Result : Did not cause sensitisation on laboratory animals.

### Components:

#### **difenoconazole:**

Species : Guinea pig  
Result : Did not cause sensitisation on laboratory animals.

#### **pydiflumetofen:**

Test Type : mouse lymphoma cells  
Species : Mouse  
Result : Did not cause sensitisation on laboratory animals.

#### **1,2-benzisothiazol-3(2H)-one:**

Result : Probability or evidence of skin sensitisation in humans

### **Germ cell mutagenicity**

#### Components:

#### **difenoconazole:**

Germ cell mutagenicity-Assessment : Animal testing did not show any mutagenic effects.

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### **pydiflumetofen:**

Germ cell mutagenicity-  
Assessment : Animal testing did not show any mutagenic effects.

### **1,2-benzisothiazol-3(2H)-one:**

Germ cell mutagenicity-  
Assessment : Weight of evidence does not support classification as a germ cell mutagen.

### **Carcinogenicity**

#### **Components:**

#### **difenoconazole:**

Carcinogenicity -  
Assessment : Weight of evidence does not support classification as a carcinogen

#### **pydiflumetofen:**

Carcinogenicity -  
Assessment : Weight of evidence does not support classification as a carcinogen

### **Reproductive toxicity**

#### **Components:**

#### **difenoconazole:**

Reproductive toxicity -  
Assessment : No toxicity to reproduction

#### **pydiflumetofen:**

Reproductive toxicity -  
Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

### **STOT - single exposure**

#### **Components:**

#### **bronopol (INN):**

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

### **Repeated dose toxicity**

#### **Components:**

#### **difenoconazole:**

Remarks : No adverse effect has been observed in chronic toxicity tests.

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### 11.2 Information on other hazards

#### Endocrine disrupting properties

##### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

##### **difenoconazole:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.1 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.77 mg/l  
Exposure time: 48 h
- EC50 (Americamysis): 0.15 mg/l  
Exposure time: 96 h
- Toxicity to algae/aquatic plants : EC50 (Navicula pelliculosa (Freshwater diatom)): 0.091 mg/l  
Exposure time: 72 h
- NOEC (Navicula pelliculosa (Freshwater diatom)): 0.053 mg/l  
Exposure time: 72 h
- ErC50 (Desmodesmus subspicatus (green algae)): 0.0876 mg/l  
Exposure time: 72 h
- EC10 (Desmodesmus subspicatus (green algae)): 0.015 mg/l  
End point: Growth rate  
Exposure time: 72 h
- M-Factor (Acute aquatic toxicity) : 10
- Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l  
Exposure time: 3 h
- Toxicity to fish (Chronic toxicity) : NOEC: 0.0076 mg/l  
Exposure time: 34 d  
Species: Pimephales promelas (fathead minnow)
- Toxicity to daphnia and other aquatic invertebrates : NOEC: 0.0056 mg/l  
Exposure time: 21 d



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(Chronic toxicity)	Species: Daphnia magna (Water flea)
	NOEC: 0.0023 mg/l Exposure time: 28 d Species: Americamysis
M-Factor (Chronic aquatic toxicity)	: 10
<b>pydiflumetofen:</b>	
Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): 0.18 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 0.42 mg/l Exposure time: 48 h
	LC50 (Americamysis): 0.16 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	: ErC50 (Raphidocelis subcapitata (freshwater green alga)): > 5.9 mg/l Exposure time: 96 h
	NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.093 mg/l End point: Growth rate Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	: 1
Toxicity to fish (Chronic toxicity)	: NOEC: 0.025 mg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: 0.042 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
	NOEC: 0.076 mg/l Exposure time: 28 d Species: Americamysis
M-Factor (Chronic aquatic toxicity)	: 1
<b>1,2-benzisothiazol-3(2H)-one:</b>	
Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): 2.18 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 2.94 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	: ErC50 (Raphidocelis subcapitata (freshwater green alga)):

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plants	0.15 mg/l Exposure time: 72 h
	EC10 (Raphidocelis subcapitata (freshwater green alga)): 0.04 mg/l End point: Growth rate Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	: 1
Toxicity to fish (Chronic toxicity)	: NOEC: 0.3 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC: 1.7 mg/l Exposure time: 21 d Species: Daphnia (water flea)
<b>bronopol (INN):</b>	
Toxicity to algae/aquatic plants	: NOEC (algae): 0.0025 mg/l Exposure time: 72 h
	EC50 (algae): 0.068 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	: 10
M-Factor (Chronic aquatic toxicity)	: 1

### 12.2 Persistence and degradability

#### Components:

##### **difenoconazole:**

Biodegradability	: Result: Not readily biodegradable.
Stability in water	: Degradation half life: 1 d Remarks: Product is not persistent.

##### **pydiflumetofen:**

Biodegradability	: Result: Not readily biodegradable.
Stability in water	: Remarks: The substance is stable in water.

##### **1,2-benzisothiazol-3(2H)-one:**

Biodegradability	: Result: rapidly degradable
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##### **bronopol (INN):**

Biodegradability	: Result: Readily biodegradable.
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### 12.3 Bioaccumulative potential

**Components:**

**difenoconazole:**

Bioaccumulation : Remarks: High bioaccumulation potential.

Partition coefficient: n-octanol/water : log Pow: 4.4 (25 °C)

**pydiflumetofen:**

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3.8 (25 °C)

**1,2-benzisothiazol-3(2H)-one:**

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

### 12.4 Mobility in soil

**Components:**

**difenoconazole:**

Distribution among environmental compartments : Remarks: Low mobility in soil.

Stability in soil : Dissipation time: 149 - 187 d  
Percentage dissipation: 50 % (DT50)  
Remarks: Product is not persistent.

**pydiflumetofen:**

Distribution among environmental compartments : Remarks: Low mobility in soil.

Stability in soil : Dissipation time: 674 d  
Percentage dissipation: 50 % (DT50)  
Remarks: Persistent in soil.

### 12.5 Results of PBT and vPvB assessment

**Product:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

**Components:**

**difenoconazole:**

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB)..

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### **pydiflumetofen:**

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

### **1,2-benzisothiazol-3(2H)-one:**

Assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).. This substance is not considered to be very persistent and very bioaccumulating (vPvB)..

## 12.6 Endocrine disrupting properties

### **Product:**

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

## 12.7 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

- Product : Do not contaminate ponds, waterways or ditches with chemical or used container.  
Do not dispose of waste into sewer.  
Where possible recycling is preferred to disposal or incineration.  
If recycling is not practicable, dispose of in compliance with local regulations.
- Contaminated packaging : Empty remaining contents.  
Triple rinse containers.  
Empty containers should be taken to an approved waste handling site for recycling or disposal.  
Do not re-use empty containers.
- 

## SECTION 14: Transport information

### 14.1 UN number or ID number

- ADN** : UN 3082  
**ADR** : UN 3082  
**RID** : UN 3082
-

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**IMDG** : UN 3082

**IATA** : UN 3082

### 14.2 UN proper shipping name

**ADN** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(DIFENOCONAZOLE AND PYDIFLUMETOFEN)

**ADR** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(DIFENOCONAZOLE AND PYDIFLUMETOFEN)

**RID** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(DIFENOCONAZOLE AND PYDIFLUMETOFEN)

**IMDG** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(DIFENOCONAZOLE AND PYDIFLUMETOFEN)

**IATA** : Environmentally hazardous substance, liquid, n.o.s.  
(DIFENOCONAZOLE AND PYDIFLUMETOFEN)

### 14.3 Transport hazard class(es)

**ADN** : 9

**ADR** : 9

**RID** : 9

**IMDG** : 9

**IATA** : 9

### 14.4 Packing group

**ADN**  
Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9

**ADR**  
Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9  
Tunnel restriction code : (-)

**RID**  
Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9

**IMDG**  
Packing group : III

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Labels : 9  
EmS Code : F-A, S-F

### IATA (Cargo)

Packing instruction (cargo aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### IATA (Passenger)

Packing instruction (passenger aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### 14.5 Environmental hazards

#### ADN

Environmentally hazardous : yes

#### ADR

Environmentally hazardous : yes

#### RID

Environmentally hazardous : yes

#### IMDG

Marine pollutant : yes

#### IATA (Passenger)

Environmentally hazardous : yes

#### IATA (Cargo)

Environmentally hazardous : yes

### 14.6 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.

### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:  
Number on list 3  
xylene

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

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REACH - List of substances subject to authorisation (Annex XIV) : Not applicable  
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable  
Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable  
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable  
PIC Ordinance, ChemPICO (814.82) : Not applicable  
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

E1	ENVIRONMENTAL HAZARDS	Quantity 1 100 t	Quantity 2 200 t
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### Other regulations:

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Article 13 Maternity ordinance (SR 822.111.52): Expectant and nursing mothers are only permitted to come into contact with this product during the course of their work if, based on a risk assessment carried out in accordance with Article 63 of Ordinance 1 on the Employment Act (ArGV 1) (SR 822.111), the chemicals in question have been found not to cause any specific harm to mothers or children or if such harm can be ruled out by taking appropriate protective measures.

### 15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

## SECTION 16: Other information

### Full text of H-Statements

H302 : Harmful if swallowed.  
H312 : 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.  
H335 : May cause respiratory irritation.  
H400 : Very toxic to aquatic life.  
H410 : Very toxic to aquatic life with long lasting effects.  
H411 : Toxic 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  
Eye Dam. : Serious eye damage  
Eye Irrit. : Eye irritation  
Skin Irrit. : Skin irritation  
Skin Sens. : Skin sensitisation

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STOT SE : Specific target organ toxicity - single 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; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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 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; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

#### Classification of the mixture:

Acute Tox. 4	H302
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

#### Classification procedure:

Based on product data or assessment
Calculation method
Calculation method

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

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 given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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