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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Vitamin D3 Isomer Mix

Product Number : PHR2663

Brand : Sigma-Aldrich

REACH No. : This product is a mixture. REACH Registration Number see section 3.

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

Identified uses : Laboratory chemicals, Manufacture of substances

Uses advised against : For R&D use only. Not for pharmaceutical, household or other uses.

**1.3****1.4 Emergency telephone**

Emergency Phone # : 000 800 1007 141 (CHEMTREC)

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**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

Acute toxicity, (Category 2) H300: Fatal if swallowed.

Acute toxicity, (Category 2) H330: Fatal if inhaled.

Acute toxicity, (Category 2)

H310: Fatal in contact with skin.

Specific target organ toxicity -  
repeated exposure, (Category 1)

H372: Causes damage to organs through  
prolonged or repeated exposure.

## 2.2 Label elements

### Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word

Danger

Hazard Statements

H300 + H310 + H330  
H372

Fatal if swallowed, in contact with skin or if inhaled.  
Causes damage to organs through prolonged or repeated  
exposure.

Precautionary Statements

P260

Do not breathe dust.

P262

Do not get in eyes, on skin, or on clothing.

P280

Wear protective gloves/ protective clothing.

P302 + P352 + P310

IF ON SKIN: Wash with plenty of water. Immediately call a  
POISON CENTER/ doctor.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable  
for breathing. Immediately call a POISON CENTER/ doctor.

P314

Get medical advice/ attention if you feel unwell.

Supplemental Hazard  
Statements

none

## 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.

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## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Component	Classification	Concentration
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<b>Vitamin D3</b>			
CAS-No.	67-97-0	Acute Tox. 2; STOT RE 1; H300, H330, H310, H372 Concentration limits: >= 3 %: STOT RE 1, H372; 0,3 - < 3 %: STOT RE 2, H373; Acute oral toxicity: 35 mg/kg Acute inhalation toxicity(dust/mist): 0,05 mg/l Acute dermal toxicity: 50 mg/kg	>= 90 - <= 100 %
EC-No.	200-673-2		
Index-No.	603-180-00-4		
	*		
<b>Precalciferol</b>			
CAS-No.	1173-13-3	Acute Tox. 2; STOT RE 2; H300, H330, H310, H373	>= 1 - < 10 %
	*		
<b>Isotachysterol</b>			
CAS-No.	469-06-7	Acute Tox. 2; STOT RE 2; H300, H330, H310, H373	>= 0,1 - < 1 %
	*		
<b>transiso-Colecalciferol</b>			
CAS-No.	1260149-80-1	Acute Tox. 2; STOT RE 1; H300, H330, H310, H372	>= 0,1 - < 1 %
	*		
<b>trans-Vitamin D3; (5E,7E)-9,10-Secocholesta-5,7,10(19)-trien</b>			
CAS-No.	22350-41-0	Acute Tox. 2; STOT RE 1; H300, H330, H310, H372	>= 0,1 - < 1 %
EC-No.	838-947-4		
Index-No.	603-180-00-4		
	*		

\*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

**If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

**In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

**In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

**If swallowed**

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

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

Carbon oxides

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

## **6.2 Environmental precautions**

Do not let product enter drains.

## **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

## **6.4 Reference to other sections**

For disposal see section 13.

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# **SECTION 7: Handling and storage**

## **7.1 Precautions for safe handling**

### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

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

### **Storage conditions**

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

### **Storage class**

Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

## **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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# **SECTION 8: Exposure controls/personal protection**

## **8.1 Control parameters**

### **Ingredients with workplace control parameters**

## **8.2 Exposure controls**

### **Personal protective equipment**

#### **Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

### **Skin protection**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

### **Body Protection**

protective clothing

### **Respiratory protection**

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### **Control of environmental exposure**

Do not let product enter drains.

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## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

- |  |                   |
|--|-------------------|
| a) Physical state                          | solid             |
| b) Color                                   | No data available |
| c) Odor                                    | No data available |
| d) Melting point/freezing point            | No data available |
| e) Initial boiling point and boiling range | No data available |
| f) Flammability (solid, gas)               | No data available |
| g) Upper/lower                             | No data available |

flammability or  
explosive limits

- |   |  |
|---|--|
| h) Flash point                            | Not applicable   |
| i) Autoignition temperature               | No data available  |
| j) Decomposition temperature              | No data available  |
| k) pH                                     | No data available  |
| l) Viscosity                              | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| m) Water solubility                       | No data available  |
| n) Partition coefficient: n-octanol/water | No data available  |
| o) Vapor pressure                         | No data available  |
| p) Density                                | No data available  |
| Relative density                          | No data available  |
| q) Relative vapor density                 | No data available  |
| r) Particle characteristics               | No data available  |
|   |  |
| s) Explosive properties                   | Not classified as explosive.   |
| t) Oxidizing properties                   | none   |

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

no information available

### 10.5 Incompatible materials

Strong oxidizing agents

## 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Acute toxicity estimate Oral - 36,07 mg/kg  
(Calculation method)

Acute toxicity estimate Inhalation - 4 h - 0,0515 mg/l - dust/mist (Calculation method)

Acute toxicity estimate Dermal - 51,8 mg/kg  
(Calculation method)

##### Skin corrosion/irritation

No data available

##### Serious eye damage/eye irritation

No data available

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

No data available

##### Carcinogenicity

No data available

##### Reproductive toxicity

No data available

##### Specific target organ toxicity - single exposure

No data available

##### Specific target organ toxicity - repeated exposure

Mixture causes damage to organs through prolonged or repeated exposure.

##### Aspiration hazard

No data available

### 11.2 Additional Information

#### 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.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.



Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

## **Components**

### **Vitamin D3**

#### **Acute toxicity**

Acute toxicity estimate Oral - 35 mg/kg

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

Acute toxicity estimate Inhalation - 0,05 mg/l - dust/mist

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

Acute toxicity estimate Dermal - 50 mg/kg

(Acute toxicity estimate according to Regulation (EC) No. 1272/2008)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation

Remarks: (External MSDS)

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

Eyes - Rabbit

Result: No eye irritation

Remarks: (External MSDS)

#### **Respiratory or skin sensitization**

Sensitisation test: - Guinea pig

Result: negative

Remarks: (External MSDS)

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: positive

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: negative

Test system: Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 474

Species: Rat - Bone marrow

Result: negative

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Ingestion - Causes damage to organs through prolonged or repeated exposure.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Aspiration hazard**

No data available

**Precalciferol****Acute toxicity**

LD50 Oral - Rat - male and female - 35 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 0,13 - 0,38 mg/l - dust/mist

(OECD Test Guideline 403)

LD50 Dermal - Rat - male - 61 mg/kg

(OECD Test Guideline 402)

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: negative

Test system: Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 474

Species: Rat - Bone marrow

Result: negative

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard**

No data available

## **Isotachysterol**

### **Acute toxicity**

LD50 Oral - Rat - male and female - 35 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 0,13 - 0,38 mg/l - dust/mist

(OECD Test Guideline 403)

LD50 Dermal - Rat - male - 61 mg/kg

(OECD Test Guideline 402)

### **Skin corrosion/irritation**

No data available

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

No data available

### **Respiratory or skin sensitization**

No data available

### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: negative

Test system: Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 474

Species: Rat - Bone marrow

Result: negative

### **Carcinogenicity**

No data available

### **Reproductive toxicity**

No data available

### **Specific target organ toxicity - single exposure**

No data available

### **Specific target organ toxicity - repeated exposure**

May cause damage to organs through prolonged or repeated exposure.

### **Aspiration hazard**

No data available

## **transiso-Colecalciferol**

### **Acute toxicity**

LD50 Oral - Rat - male and female - 35 mg/kg

(OECD Test Guideline 401)

Remarks: (in analogy to similar compounds)

The value is given in analogy to the following substances: Vitamin D3

Symptoms: Nausea, Vomiting

LC50 Inhalation - Rat - 4 h - 0,13 - 0,38 mg/l - dust/mist

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

LD50 Dermal - Rat - male - 61 mg/kg

(OECD Test Guideline 402)

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: No skin irritation

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

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

Eyes - Rabbit

Result: No eye irritation

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

#### **Respiratory or skin sensitization**

Sensitisation test: - Guinea pig

Result: negative

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Result: negative

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

Test system: Mouse lymphoma test

Result: negative

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

Method: OECD Test Guideline 474

Species: Rat - Bone marrow

Result: negative

Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: Vitamin D3

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

Possible risk of congenital malformation in the fetus.

May cause reproductive disorders.

**Specific target organ toxicity - single exposure**

Acute oral toxicity - Nausea, Vomiting

**Specific target organ toxicity - repeated exposure**

Ingestion - Causes damage to organs through prolonged or repeated exposure.

Remarks: Based on data from similar materials

The value is given in analogy to the following substances: Vitamin D3

**Aspiration hazard**

No data available

**trans-Vitamin D3; (5E,7E)-9,10-Secosteroid-5,7,10(19)-trien****Acute toxicity**

Acute toxicity estimate Oral - 35 mg/kg

(Expert judgment)

Remarks: The value is given in analogy to the following substances: Vitamin D3

Acute toxicity estimate Inhalation - 4 h - 0,05 mg/l - dust/mist

(Expert judgment)

Remarks: The value is given in analogy to the following substances: Vitamin D3

Acute toxicity estimate Dermal - 50 mg/kg

(Expert judgment)

Remarks: The value is given in analogy to the following substances: Vitamin D3

**Skin corrosion/irritation**

No data available

**Serious eye damage/eye irritation**

No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

No data available

**Carcinogenicity**

No data available

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Aspiration hazard**

No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Mixture

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB 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.

### 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

#### Components

##### Vitamin D3

Toxicity to daphnia and other aquatic invertebrates	NOEC - Daphnia magna (Water flea) - 100 mg/l - 48 h (OECD Test Guideline 202) Remarks: (above the solubility limit in the test medium)
Toxicity to algae	NOEC - Pseudokirchneriella subcapitata (green algae) - 100 mg/l - 96 h (OECD Test Guideline 201) Remarks: (above the solubility limit in the test medium)
Toxicity to bacteria	EC10 - Pseudomonas putida - > 10.000 mg/l - 30 min Remarks: (above the solubility limit in the test medium) (External MSDS)

#### Precalciferol

No data available

## Isotachysterol

No data available

## transo-Colecalciferol

Toxicity to daphnia  
and other aquatic  
invertebrates

NOEC - Daphnia magna (Water flea) - 100 mg/l - 48 h  
(OECD Test Guideline 202)  
Remarks: (above the solubility limit in the test medium)  
(in analogy to similar products)  
The value is given in analogy to the following substances:  
Vitamin D3

Toxicity to algae

NOEC - Pseudokirchneriella subcapitata (green algae) - 100  
mg/l - 96 h  
(OECD Test Guideline 201)  
Remarks: (above the solubility limit in the test medium)  
(in analogy to similar products)  
The value is given in analogy to the following substances:  
Vitamin D3

Toxicity to bacteria

EC10 - Pseudomonas putida - > 10.000 mg/l - 30 min  
Remarks: (above the solubility limit in the test medium)  
(in analogy to similar products)  
The value is given in analogy to the following substances:  
Vitamin D3

## trans-Vitamin D3; (5E,7E)-9,10-Secocholesta-5,7,10(19)-trien

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

No data available

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 2811

IMDG: 2811

IATA: 2811

### 14.2 UN proper shipping name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (Vitamin D3)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (Vitamin D3)  
IATA: Toxic solid, organic, n.o.s. (Vitamin D3)

### 14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

## 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

## 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

## 14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

## SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

### Authorisations and/or restrictions on use

## National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	H2	ACUTE TOXIC
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## Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

## 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

## SECTION 16: Other information

### Full text of H-Statements

H300	Fatal if swallowed.
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H300	Fatal if swallowed.
H310	Fatal in contact with skin.

H330	Fatal if inhaled.
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H372	Causes damage to organs through prolonged or repeated exposure.
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H373 May cause damage to organs through prolonged or repeated exposure.



## Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - 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 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; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

### Classification of the mixture

Acute Tox.2	H300
Acute Tox.2	H330
Acute Tox.2	H310
STOT RE1	H372

### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method

**Further information**

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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