

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Version 9.1

Revision Date 18.12.2024

Print Date 11.01.2025

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

Product name : Cobalt(II) nitrate hexahydrate

Product Number : 239267

Brand : SIGALD

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.

CAS-No. : 10026-22-9

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

Identified uses : Laboratory chemicals, Manufacture of substances

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

Company :

**1.4 Emergency telephone**

Emergency Phone # : +(44)-870-8200418 (CHEMTREC (GB))  
+(353)-19014670 (CHEMTREC Ireland)  
001-803-017-9114 (CHEMTREC India)

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

|   |  |
|---|--|
| Oxidizing solids, (Category 2)          | H272: May intensify fire; oxidizer.  |
| Acute toxicity, (Category 4)            | H302: Harmful if swallowed.  |
| Serious eye damage, (Category 1)        | H318: Causes serious eye damage.   |
| Respiratory sensitization, (Category 1) | H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Skin sensitization, (Category 1)        | H317: May cause an allergic skin reaction.                                       |
| Germ cell mutagenicity, (Category 2)    | H341: Suspected of causing genetic defects.                                      |



|   |   |
|---|---|
| Carcinogenicity, (Category 1B)  | H350i: May cause cancer by inhalation.  |
| Reproductive toxicity, (Category 1B)                                    | H360FD: May damage fertility. May damage the unborn child.                          |
| Specific target organ toxicity - repeated exposure, (Category 2), Lungs | H373: May cause damage to organs through prolonged or repeated exposure if inhaled. |
| 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 according Regulation (EC) No 1272/2008

Pictogram



Signal Word

Danger

Hazard Statements

|        |   |
|--------|---|
| H272   | May intensify fire; oxidizer.   |
| H302   | Harmful if swallowed.   |
| H317   | May cause an allergic skin reaction.  |
| H318   | Causes serious eye damage.  |
| H334   | May cause allergy or asthma symptoms or breathing difficulties if inhaled.            |
| H341   | Suspected of causing genetic defects.   |
| H350i  | May cause cancer by inhalation.   |
| H360FD | May damage fertility. May damage the unborn child.                                    |
| H373   | May cause damage to organs (Lungs) through prolonged or repeated exposure if inhaled. |
| H410   | Very toxic to aquatic life with long lasting effects.                                 |

Precautionary Statements

|                    |  |
|--------------------|--|
| P210               | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.                                   |
| P273               | Avoid release to the environment.  |
| P280               | Wear protective gloves/ protective clothing/ eye protection/ face protection.  |
| P301 + P312        | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.   |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308 + P313        | IF exposed or concerned: Get medical advice/ attention.  |

Supplemental Hazard Statements

none

Restricted to professional users.

### Reduced Labeling (<= 125 ml)



Pictogram



Signal Word

Danger

Hazard Statements

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H317 May cause an allergic skin reaction.  
H341 Suspected of causing genetic defects.  
H350i May cause cancer by inhalation.  
H318 Causes serious eye damage.  
H360FD May damage fertility. May damage the unborn child.

Precautionary Statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
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.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms : Cobaltous nitrate

Formula :  $\text{CoN}_2\text{O}_6 \cdot 6\text{H}_2\text{O}$

Molecular weight : 291.03 g/mol

CAS-No. : 10026-22-9

EC-No. : 233-402-1

| Component   |            | Classification   | Concentration |
|---|------------|--|---------------|
| <b>Cobaltous nitrate, hexahydrate</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH) |            |  |               |
| CAS-No.   | 10026-22-9 | Ox. Sol. 2; Acute Tox. 4; Eye Dam. 1; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Carc. 1B; Repr. 1B; STOT | <= 100 %      |
| EC-No.  | 233-402-1  |  |               |



|  |   |  |
|--|---|--|
|  | RE 2; Aquatic Acute 1;<br>Aquatic Chronic 1; H272,<br>H302, H318, H334, H317,<br>H341, H350i, H360FD,<br>H360F, H373, H400, H410<br>Concentration limits:<br>>= 0.01 %: Carc. 1B,<br>H350i;<br>M-Factor - Aquatic Acute:<br>10 - Aquatic Chronic: 1 |  |
|--|---|--|

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

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## 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. Call in physician.

#### In case of skin contact

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

#### In case of eye contact

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

#### If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

### 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

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

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

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

Nitrogen oxides (NO<sub>x</sub>)

Cobalt/cobalt oxides

Not combustible.

Has a fire-promoting effect due to release of oxygen.



Ambient fire may liberate hazardous vapours.

### **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**

Suppress (knock down) gases/vapors/mists with a water spray jet. 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.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition.

#### **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. Keep locked up or in an area accessible only to qualified or authorized persons. Do not store near combustible materials.

#### **Storage class**

Storage class (TRGS 510): 5.1B: Oxidizing 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). Tightly fitting safety goggles

##### **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

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)).

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                               | crystalline  |
| b) Color  | red  |
| c) Odor   | No data available  |
| d) Melting point/freezing point                 | Melting point/ range: 55 °C - lit.   |
| e) Initial boiling point and boiling range      | No data available  |
| f) Flammability (solid, gas)                    | No data available  |
| g) Upper/lower flammability or explosive limits | No data available  |
| h) Flash point                                  | Not applicable   |
| i) Autoignition temperature                     | No data available  |
| j) Decomposition temperature                    | No data available  |
| k) pH   | 4.0 at 100 g/l at 20 °C  |
| l) Viscosity                                    | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| m) Water solubility                             | soluble  |
| n) Partition coefficient: n-octanol/water       | Not applicable for inorganic substances  |
| o) Vapor pressure                               | No data available  |
| p) Density                                      | 1.88 g/cm <sup>3</sup>   |
| 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                         | The substance or mixture is classified as oxidizing with the category 2.         |

### 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available



## 10.2 Chemical stability

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

## 10.3 Possibility of hazardous reactions

Risk of explosion with:  
ammonium compounds  
carbon/soot  
oxidisable substances

## 10.4 Conditions to avoid

Heat. Exposure to moisture.  
no information available

## 10.5 Incompatible materials

No data available

## 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

#### Acute toxicity

Acute toxicity estimate Oral - 434 mg/kg  
(Calculation method)  
LD50 Oral - Rat - male and female - 978 mg/kg  
(OECD Test Guideline 401)  
Acute toxicity estimate Oral - 978 mg/kg  
(ATE value derived from LD50/LC50 value)  
Inhalation: No data available  
Dermal: No data available

#### Skin corrosion/irritation

Skin - Rabbit  
Result: No skin irritation - 4 h  
(OECD Test Guideline 404)  
Remarks: (anhydrous substance)  
The value is given in analogy to the following substances: Cobalt(II) nitrate

#### Serious eye damage/eye irritation

Eyes - Rabbit  
Result: Causes serious eye damage.  
(OECD Test Guideline 405)  
Remarks: (anhydrous substance)  
The value is given in analogy to the following substances: Cobalt(II) nitrate

#### Respiratory or skin sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) (anhydrous substance)  
May cause allergic skin reaction. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2) (anhydrous substance)

#### Germ cell mutagenicity

Suspected of causing genetic defects.

#### Carcinogenicity

May cause cancer by inhalation.





**Reproductive toxicity**

May damage the unborn child.

May damage fertility.

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Inhalation - May cause damage to organs through prolonged or repeated exposure.

- Lungs

**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.

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3 mg/kg

RTECS: QU7355500

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

Symptoms of an acute cobalt intoxication: diarrhoea, loss of appetite, drop in body temperature, drop in blood pressure. Toxic effect on kidneys (proteinuria, anuria), heart, and pancreas.

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

somnolence

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

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**SECTION 12: Ecological information****12.1 Toxicity**

|                  |  |
|------------------|--|
| Toxicity to fish | semi-static test LC50 - Pimephales promelas (fathead minnow) - 1.866 mg/l - 96 h (US-EPA)<br>Remarks: (anhydrous substance)<br>The value is given in analogy to the following substances: Cobalt(II) nitrate |
|------------------|--|



|   |  |
|---|--|
| Toxicity to daphnia and other aquatic invertebrates                   | static test LC50 - Ceriodaphnia dubia (water flea) - 0.39 mg/l - 48 h (US-EPA)<br>Remarks: (anhydrous substance)<br>The value is given in analogy to the following substances: Cobalt(II) nitrate                    |
| Toxicity to algae   | static test ErC50 - Pseudokirchneriella subcapitata - 0.095 mg/l - 72 h (OECD Test Guideline 201)<br>Remarks: (anhydrous substance)<br>The value is given in analogy to the following substances: Cobalt(II) nitrate |
| Toxicity to bacteria  | static test EC50 - activated sludge - 120 mg/l - 30 min (OECD Test Guideline 209)<br>Remarks: (anhydrous substance)<br>The value is given in analogy to the following substances: Cobalt(II) nitrate                 |
| Toxicity to fish(Chronic toxicity)                                    | semi-static test NOEC - Pimephales promelas (fathead minnow) - 0.9 mg/l - 7 d (US-EPA)<br>Remarks: (anhydrous substance)<br>The value is given in analogy to the following substances: Cobalt(II) nitrate            |
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | semi-static test NOEC - Ceriodaphnia dubia (water flea) - 0.02 mg/l - 7 d (US-EPA)<br>Remarks: (anhydrous substance)<br>The value is given in analogy to the following substances: Cobalt(II) nitrate                |

## 12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

## 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

Discharge into the environment must be avoided.

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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: 1477

IMDG: 1477

IATA: 1477

### 14.2 UN proper shipping name

ADR/RID: NITRATES, INORGANIC, N.O.S. (Cobaltous nitrate, hexahydrate)

IMDG: NITRATES, INORGANIC, N.O.S. (Cobaltous nitrate, hexahydrate)

IATA: Nitrates, inorganic, n.o.s.

### 14.3 Transport hazard class(es)

ADR/RID: 5.1

IMDG: 5.1

IATA: 5.1

### 14.4 Packaging group

ADR/RID: II

IMDG: II

IATA: II

### 14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

### 14.6 Special precautions for user

Further information : No data available

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## 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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Cobaltous nitrate, hexahydrate

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Cobaltous nitrate, hexahydrate

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Cobaltous nitrate, hexahydrate



**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.

P8 OXIDISING LIQUIDS AND SOLIDS

E1 ENVIRONMENTAL HAZARDS

**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

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**SECTION 16: Other information****Full text of H-Statements**

|        |   |
|--------|---|
| H272   | May intensify fire; oxidizer.   |
| H302   | Harmful if swallowed.   |
| H317   | May cause an allergic skin reaction.  |
| H318   | Causes serious eye damage.  |
| H334   | May cause allergy or asthma symptoms or breathing difficulties if inhaled.    |
| H341   | Suspected of causing genetic defects.   |
| H350i  | May cause cancer by inhalation.   |
| H360F  | May damage fertility.   |
| H360FD | May damage fertility. May damage the unborn child.                            |
| H373   | May cause damage to organs through prolonged or repeated exposure if inhaled. |
| H400   | Very toxic to aquatic life.   |
| H410   | Very toxic to aquatic life with long lasting effects.                         |



## 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

## 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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