

## **Cobalt Dihydroxide**

Version 0.0

Revision Date: 00.00.0000

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

Product identifier : Cobalt dihydroxide

REACH Registration Number : 01-2119517583-39

CAS-No. : 21041-93-0

EC-No. : 244-166-4

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

Use of the Substance/Mixture : Intermediate, Paint, Fertilizers, Specialty chemical for industrial use, Resins., Production of catalysts and catalyst precursors, Chemical plating of metals, Production of batteries., Manufacture of glass., Colouring agents, pigments, Additive for printing inks., Paint additive

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

Company :

E-mail address of person responsible for the SDS :

#### **1.4 Emergency telephone number**

##### **Poison Center**

Telephone :

Hours of operation : 24HRS

##### **Supplier**

Emergency telephone number : For transport in Europe, Central- and South America, Israel and Africa (Non-Arabic speaking countries):  
For transport in the Middle East (Israel excluded) & Arabic speaking Africa:  
For transport in the USA and Canada:  
For transport in Asian and the Pacific (China excluded):  
For transport in China:

Hours of operation : This telephone number is available 24 hours per day, 7 days per week.

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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.
Acute toxicity, Category 1	H330: Fatal if inhaled.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Respiratory sensitisation, Sub-category 1B	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Sub-category 1B	H360Fd: May damage fertility. Suspected of damaging the unborn child.
Carcinogenicity, Category 1B	H350i: May cause cancer by inhalation.
Acute aquatic toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

#### 2.2 Label elements

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

Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	H302 Harmful if swallowed. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H330 Fatal if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H360Fd: May damage fertility. Suspected of damaging the unborn child. H350i May cause cancer by inhalation. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	:	<b>Prevention:</b> P201 Obtain special instructions before use. P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

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### Response:

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

### Storage:

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

### 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.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

EC-No. : 244-166-4

#### Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification	Concentration (% w/w)
cobalt dihydroxide	21041-93-0 244-166-4	Acute Tox. 4; H302 Acute Tox. 1; H330 Eye Irrit. 2; H319 Resp. Sens. 1B; H334 Skin Sens. 1; H317 Repr. 1B; H360Fd Carc. 1B; H350i Aquatic Acute 1; H400 Aquatic Chronic 2; H411	<= 100

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice : Move out of dangerous area.  
Consult a physician.  
Show this safety data sheet to the doctor in attendance.  
Symptoms of poisoning may appear several hours later.  
Do not leave the victim unattended.

If inhaled : Call a physician or poison control centre immediately.  
Move to fresh air.

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- If unconscious, place in recovery position and get medical attention immediately.
- In case of skin contact : If on skin, rinse well with water.  
If on clothes, remove clothes.  
If symptoms persist, call a physician.  
Wash contaminated clothing before reuse.
- In case of eye contact : Remove contact lenses.  
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Protect unharmed eye.  
Keep eye wide open while rinsing.
- If swallowed : Keep respiratory tract clear.  
Do not give milk or alcoholic beverages.  
Never give anything by mouth to an unconscious person.  
Take victim immediately to hospital.

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

- Symptoms : Skin contact may provoke the following symptoms:  
Allergic reactions  
Inhalation may provoke the following symptoms:  
Shortness of breath  
Asthma  
Ingestion may provoke the following symptoms:  
Stomach/intestinal disorders  
In case of eye contact  
Excessive lachrymation

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

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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 : High volume water jet

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

- Specific hazards during fire-fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Cobalt compounds

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### **5.3 Advice for firefighters**

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.  
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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## **SECTION 6: Accidental release measures**

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

Personal precautions : Use personal protective equipment.  
Avoid dust formation.  
Avoid breathing dust.  
Ensure adequate ventilation.  
Evacuate personnel to safe areas.

### **6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.  
Prevent further leakage or spillage if safe to do so.  
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 : Pick up and arrange disposal without creating dust.  
Keep in suitable, closed containers for disposal.

### **6.4 Reference to other sections**

For personal protection see section 8.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

Advice on safe handling : Avoid formation of respirable particles.  
Do not breathe vapours/dust.  
Avoid exposure - obtain special instructions before use.  
Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
Provide sufficient air exchange and/or exhaust in work rooms.  
Dispose of rinse water in accordance with local and national regulations.  
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

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Advice on protection against fire and explosion : Avoid dust formation. Provide appropriate exhaust ventilation at places where dust is formed.

Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

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

Requirements for storage areas and containers : Prevent unauthorized access. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards. To maintain product quality, do not store in heat or direct sunlight.

Further information on storage stability : Keep in a dry place. No decomposition if stored and applied as directed.

### 7.3 Specific end use(s)

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

Contains no substances with occupational exposure limit values.

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

Substance name	End Use	Exposure routes	Potential health effects	Value
cobalt dihydroxide	Workers	Inhalation		0,063 mg/m3

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

Substance name	Environmental Compartment	Value
cobalt dihydroxide	Sewage treatment plant	0,37 mg/l
	Fresh water	0,00051 mg/l
	Marine water	0,00236 mg/l
	Fresh water sediment	9,5 mg/kg dry weight (d.w.)
	Soil	7,9 mg/kg dry weight (d.w.)

### 8.2 Exposure controls

#### Engineering measures

Handle only in a place equipped with local exhaust (or other appropriate exhaust).

#### Personal protective equipment

Eye protection : Safety glasses with side-shields conforming to EN166

Skin and body protection : Dust impervious protective suit

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Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.  
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

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### SECTION 9: Physical and chemical properties

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

Appearance : powder

Colour : purple

Odour : odourless

Melting point/range : Decomposition

Flash point : Method: closed cup  
does not flash

Flammability (solid, gas) : The product is not flammable.

Relative density : 3,6

Density : 3,6 g/cm<sup>3</sup>

Solubility(ies)  
Water solubility : insoluble

Decomposition temperature : 250 °C

#### 9.2 Other information

No data available

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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Stable at normal ambient temperature and pressure.

#### 10.2 Chemical stability

No decomposition if stored and applied as directed.

#### 10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

#### 10.4 Conditions to avoid

Conditions to avoid : None known.

#### 10.5 Incompatible materials

Materials to avoid : None.

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### 10.6 Hazardous decomposition products

No decomposition if stored normally.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Components:

##### **cobalt hydroxide:**

- Acute oral toxicity : LD50 (Rat, male and female): 1.060 mg/kg  
Method: OECD Test Guideline 401
- Acute inhalation toxicity : Assessment: The component/mixture is extremely toxic after short term inhalation. LC50 < 0.05mg/l  
Method: OECD Test Guideline 436
- Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg  
Method: OECD Test Guideline 402  
GLP: yes  
Remarks: Based on read across from structural related substance:

#### Skin corrosion/irritation

##### Product:

Remarks: May cause skin irritation in susceptible persons.

##### Components:

##### **cobalt hydroxide:**

Assessment: No skin irritation  
GLP: yes

#### Serious eye damage/eye irritation

##### Product:

Remarks: No data available

##### Components:

##### **cobalt hydroxide:**

Species: Rabbit



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Method: OECD Test Guideline 405  
Result: Eye irritation  
GLP: no

### Respiratory or skin sensitisation

#### Product:

Remarks: May cause sensitisation of susceptible persons by skin contact.

#### Components:

##### **cobalt hydroxide:**

Remarks: data waiving in REACH dossier

### Germ cell mutagenicity

#### Product:

Genotoxicity in vitro : Remarks: No data available

#### Components:

##### **cobalt hydroxide:**

Genotoxicity in vitro : Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes  
Remarks: Based on read across from structural related substance:  
Copper sulphate

### Carcinogenicity

#### Product:

Remarks: No data available

#### Components:

##### **cobalt hydroxide:**

Species: Mouse, (male and female)  
Application Route: inhalation (vapour)  
GLP: yes  
Remarks: Based on read across from structural related substance:  
Cobalt sulphate

### Reproductive toxicity

#### Product:

Effects on fertility : Remarks: No data available

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### STOT - single exposure

**Product:**

Remarks: No data available

### STOT - repeated exposure

**Product:**

Remarks: No data available

### Repeated dose toxicity

**Components:**

**cobalt hydroxide:**

Species: Rat

NOAEL: 1.000 mg/kg

Application Route: Oral

Method: OECD Test Guideline 422

GLP: yes

Remarks: Based on read across from structural related substance:  
cobalt sulphide

### Further information

**Product:**

Remarks: No data available

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## SECTION 12: Ecological information

### 12.1 Toxicity

**Components:**

**cobalt hydroxide:**

Toxicity to daphnia and other aquatic invertebrates : EC10 : 2,48 mg/l  
Exposure time: 81 d  
Test Type: flow-through test  
GLP: yes  
Remarks: Based on read across from structural related substance:  
cobalt dichloride hexahydrate  
Fresh water

M-Factor (Acute aquatic toxicity) : 10

Toxicity to fish (Chronic toxicity) : EC10:  
Exposure time: 81 d  
Species: Oncorhynchus mykiss (rainbow trout)

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Remarks: Based on read across from structural related substance:

cobalt dichloride hexahydrate

Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 1,94 mg/l  
Exposure time: 28 d  
GLP: yes

Remarks: Based on read across from structural related substance:

cobalt dichloride hexahydrate

Marine water

M-Factor (Chronic aquatic toxicity) : 1

### Ecotoxicology Assessment

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

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

#### Components:

#### **cobalt hydroxide:**

Bioaccumulation : Bioconcentration factor (BCF): 180 - 4.000

### 12.4 Mobility in soil

No data available

### 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..

### 12.6 Other adverse effects

#### Product:

Additional ecological information : Very toxic to aquatic life.  
Toxic to aquatic life with long lasting effects.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

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- Product** : The product should not be allowed to enter drains, water courses or the soil.  
Dispose of in accordance with the European Directives on waste and hazardous waste.  
In accordance with local and national regulations.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.  
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.  
Send to a licensed waste management company.
- Contaminated packaging** : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

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### SECTION 14: Transport information

#### 14.1 UN number

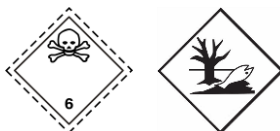
- ADN** : UN 3288  
**ADR** : UN 3288  
**RID** : UN 3288  
**IMDG** : UN 3288  
**IATA** : UN 3288

#### 14.2 UN proper shipping name

- ADN** : TOXIC SOLID, INORGANIC, N.O.S.  
(cobalt dihydroxide)  
**ADR** : TOXIC SOLID, INORGANIC, N.O.S.  
(cobalt dihydroxide)  
**RID** : TOXIC SOLID, INORGANIC, N.O.S.  
(cobalt dihydroxide)  
**IMDG** : TOXIC SOLID, INORGANIC, N.O.S.  
(cobalt dihydroxide)  
**IATA** : Toxic solid, inorganic, n.o.s.  
(cobalt dihydroxide)

#### 14.3 Transport hazard class(es)

- ADN** : 6.1










- ADR** : 6.1

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<b>RID</b>	:	6.1		
<b>IMDG</b>	:	6.1		
<b>IATA</b>	:	6.1		
				

### 14.4 Packing group

<b>ADN</b>		
Packing group	:	I
Classification Code	:	T5
Hazard Identification Number	:	66
Labels	:	6.1
<b>ADR</b>		
Packing group	:	I
Classification Code	:	T5
Hazard Identification Number	:	66
Labels	:	6.1
Tunnel restriction code	:	(C/E)
<b>RID</b>		
Packing group	:	I
Classification Code	:	T5
Hazard Identification Number	:	66
Labels	:	6.1
<b>IMDG</b>		
Packing group	:	I
Labels	:	6.1
EmS Code	:	F-A, S-A
IMDG segregationcode	:	
<b>IATA</b>		
Packing instruction (cargo aircraft)	:	673
Maximum quantity	:	50,00 KG

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Packing instruction (passenger aircraft) : 666  
Maximum quantity : 5,00 KG  
Packing group : I  
Labels : Toxic

### 14.5 Environmental hazards

**ADN**  
Environmentally hazardous : yes

**ADR**  
Environmentally hazardous : yes

**RID**  
Environmentally hazardous : yes

**IMDG**  
Marine pollutant : yes

### 14.6 Special precautions for user

Not applicable

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

### 14.8 Remarkt

Respirable fraction of the material is >10%

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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) : Not applicable

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

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 (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : 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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H1 ACUTE TOXIC 5 t 20 t

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)  
Not applicable

### Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

### The components of this product are reported in the following inventories:

CH INV : On the inventory, or in compliance with the inventory  
DSL : All components of this product are on the Canadian DSL  
AICS : On the inventory, or in compliance with the inventory  
NZIoC : Not in compliance with the inventory  
ENCS : On the inventory, or in compliance with the inventory  
ISHL : On the inventory, or in compliance with the inventory  
KECI : On the inventory, or in compliance with the inventory  
PICCS : Not in compliance with the inventory  
IECSC : On the inventory, or in compliance with the inventory  
TCSI : On the inventory, or in compliance with the inventory  
TSCA : On TSCA Inventory

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

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## SECTION 16: Other information

### Full text of other abbreviations

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; AICS - Australian Inventory of Chemical Substances; 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

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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; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

### Further information

Other information : This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

The Exposure Scenario is currently not incorporated in the SDS. It can be provided upon request by your regular SDS contact person.

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.