

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



## NITRALZ® 2,6-Dichlorobenzonitrile

Version 8.1 / REG\_EU  
Revision Date: 27.05.2019

Specification: 132152  
Material no.:

Date of first issue: 27.05.2019  
Print Date: 28.05.2019

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

#### 1.1 Product identifier

Trade name : NITRALZ® 2,6-Dichlorobenzonitrile  
Registration number : 01-2119948043-42-0001  
CAS-No. : 1194-65-6  
Index-No. : 608-015-00-X  
EC-No. : 214-787-5

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

Use of the Sub-  
stance/Mixture : Raw material for industrial use, Pesticide

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

Company : AlzChem Trostberg GmbH  
Dr.-Albert-Frank-Str. 32  
83308 Trostberg, Germany  
Telephone : +49 8621 86-3351  
E-mail address of person  
responsible for the SDS : alz-pst@alzchem.com

#### 1.4 Emergency telephone number

Emergency telephone num-  
ber : +49 8621 86-2776  
AlzChem Trostberg GmbH, Fire Brigade

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

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

Acute toxicity, Category 4 H312: Harmful in contact with skin.

Long-term (chronic) aquatic hazard, Cat-  
egory 2 H411: 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 : H312 Harmful in contact with skin.  
H411 Toxic to aquatic life with long lasting effects.
- Precautionary statements : **Prevention:**  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.
- Response:**  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P391 Collect spillage.
- Disposal:**  
P501 Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Other hazards

A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out  
Dust can form an explosive mixture in air.

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

- Substance name : dichlobenil (ISO)  
Index-No. : 608-015-00-X

#### Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
2,6-dichlorobenzonitrile	1194-65-6 214-787-5	>= 98,5

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : Seek medical advice in case of symptoms caused by eye or skin contact, inhalation or swallowing.  
Remove contaminated or soaked clothing immediately and dispose of safely.
- If inhaled : Bring affected person outside and ensure that he/she is comfortable.  
In case of massive exposure:  
Early application of cortisone spray.
- In case of skin contact : Remove contaminated or saturated clothing.  
Upon skin contact, wash with plenty of water and soap.

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- Continue decontamination with polyethylene glycol 400 after initial rinsing with water and then wash with water and soap.
- In case of eye contact : Rinse thoroughly with plenty of water, also under the eyelids.
- If swallowed : Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting.

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

None known.

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

Treatment : Symptomatic treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Water spray, foam, CO<sub>2</sub>, dry powder.

Unsuitable extinguishing media : high volume water jet

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

Hazardous combustion products : nitrous gases  
Hydrocyanic acid (HCN)  
hydrogen chloride (HCl)  
Carbon oxides  
Hydrocarbons  
Ammonia

### 5.3 Advice for firefighters

Special protective equipment for firefighters : In the case of fire, wear respiratory protective equipment independent of surrounding air and chemical protective suit.

Further information : Cool container with jet of water spray from a safe distance

## SECTION 6: Accidental release measures

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

Personal precautions : Wear personal protective equipment; see section 8.  
Ensure adequate ventilation.  
Keep away from heat and sources of ignition.

### 6.2 Environmental precautions

Environmental precautions : Product or extinguishing water with product must not be allowed to enter soil, sewers or natural bodies of water.

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

Methods for cleaning up : Sweep up and shovel.  
Avoid dust formation.  
Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Advice on safe handling : Avoid dust formation.  
Provide sufficient ventilation and exhaust at the workplace.  
Remove contaminated or saturated clothing.

Advice on protection against fire and explosion : If dusts develop, explosive dust/air mixtures may form. Take precautionary measures against static charges, keep away from sources of ignition.

Hygiene measures : Do not breathe vapours/dust. Avoid contact with skin, eyes, and clothing. Wash contact areas after handling. Take off clothing and shoes contaminated with product. Clean before reuse. Do not eat, drink or smoke during use. Keep away from food, drink and animal feedingstuffs.

Dust explosion class : St1

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

Further information on storage conditions : Keep containers tightly closed in a cool, well-ventilated place.

Advice on common storage : Incompatible with strong oxidizing agents.

Packaging material : Suitable material: polyethylene, polypropylene, Steel drum with polyethylene inliner, stainless steel

### 7.3 Specific end use(s)

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

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

Substance name	End Use	Exposure routes	Potential health effects	Value
dichlobenil (ISO)	Workers	Inhalation	Long-term systemic effects	0,08 mg/m <sup>3</sup>
	Workers	Skin contact	Long-term systemic effects	5,5 mg/kg
	Workers	Skin contact	Acute systemic effects	33,3 mg/kg

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

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Substance name	Environmental Compartment	Value
dichlobenil (ISO)	Fresh water	0,0019 mg/l
	Marine water	0,00019 mg/l
	water - intermittent releases	0,00033 mg/l
	Fresh water sediment	0,0519 mg/kg
	Marine sediment	0,00519 mg/kg
	Sewage treatment plant	100 mg/l
	soil	0,72 mg/kg
	oral (secondary poisoning)	0,133 mg/kg

### 8.2 Exposure controls

#### Personal protective equipment

Eye protection : Safety glasses

#### Hand protection

Material : Nitrile rubber, Recommendation: Dermatril 740  
Break through time : 480 min  
Glove thickness : 0,11 mm  
Directive : DIN EN 374  
Manufacturer : Kächele-Cama Latex GmbH (KCL), Germany

Material : Chloroprene, Recommendation: Camapren 722  
Break through time : 480 min  
Glove thickness : 0,6 mm  
Directive : DIN EN 374  
Manufacturer : Kächele-Cama Latex GmbH (KCL), Germany

Skin and body protection : Protective clothing  
If intensive contact with the hazardous material cannot be avoided with certainty, order (depending on the hazard involved) additional protective measures for example chemical protective suit.

Respiratory protection : Use suitable respiratory protection in the presence of dust.  
Dust protection mask in accordance with EN 149 FFP2

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance : solid  
Colour : colourless  
Odour : aromatic like nitrile  
Melting point/range : ca. 142 °C  
Boiling point/boiling range : 270 - 275 °C  
(1.013 hPa)  
Flash point : > 100 °C  
Burning number : BZ 1 - does not ignite.

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Lower explosion limit / Lower flammability limit	:	ca. 80000 mg/m <sup>3</sup>
Vapour pressure	:	0,00135 hPa (25 °C)
Density	:	1,349 g/cm <sup>3</sup> (20 °C)
Solubility(ies)		
Water solubility	:	0,02 g/l (20 °C)
Solubility in other solvents	:	53 g/l (20 °C) Solvent: xylene
Partition coefficient: n-octanol/water	:	log Pow: ca. 2,83 (calculated)
Auto-ignition temperature	:	660 °C Method: Ignition temperature for swirling (airborne) dust  > 360 °C Method: Flammability of deposited dust No burning at 360°C.

### 9.2 Other information

Molecular weight	:	172,06 g/mol
Dust explosion class	:	St1
Minimum ignition energy	:	ca. 4 - 10 J

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

See section 10.3

### 10.2 Chemical stability

No decomposition if stored and applied as directed.

### 10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

### 10.4 Conditions to avoid

Conditions to avoid : Avoid dust formation.  
Keep away from heat and sources of ignition.

### 10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents

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### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions.  
see section 5

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Product:

Acute dermal toxicity : Assessment: Harmful in contact with skin.  
Remarks: The available data does not support the harmonized classification.

##### Components:

##### **2,6-dichlorobenzonitrile:**

Acute oral toxicity : LD50 (rat): > 2000 mg/kg  
Assessment: Based on available data, the classification criteria are not met.  
Remarks: IUCLID

Acute inhalation toxicity : Assessment: Based on available data, the classification criteria are not met.  
Remarks: IUCLID

Acute dermal toxicity : LD50 (Rabbit): > 2000 mg/kg  
Assessment: The available data does not support the harmonized classification.  
Remarks: IUCLID

#### Skin corrosion/irritation

##### Components:

##### **2,6-dichlorobenzonitrile:**

Species : Rabbit  
Exposure time : 72 h  
Method : OECD Guide-line 404  
Result : Not irritating.  
Remarks : IUCLID

#### Serious eye damage/eye irritation

##### Components:

##### **2,6-dichlorobenzonitrile:**

Species : Rabbit  
Method : OECD Guide-line 405  
Result : Not irritating.  
Remarks : IUCLID

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### Respiratory or skin sensitisation

#### Components:

##### 2,6-dichlorobenzonitrile:

Assessment : Based on available data, the classification criteria are not met.  
Remarks : IUCLID

### Germ cell mutagenicity

#### Components:

##### 2,6-dichlorobenzonitrile:

Genotoxicity in vitro : Test Type: Ames test  
Test system: Salmonella typhimurium  
Method: OECD TG 471  
Result: negative  
Remarks: IUCLID

Germ cell mutagenicity- Assessment : Based on available data, the classification criteria are not met.  
Remarks: IUCLID

### Carcinogenicity

#### Components:

##### 2,6-dichlorobenzonitrile:

Carcinogenicity - Assessment : Based on available data, the classification criteria are not met.  
Remarks: IUCLID

### Reproductive toxicity

#### Components:

##### 2,6-dichlorobenzonitrile:

Reproductive toxicity - Assessment : Based on available data, the classification criteria are not met.  
Remarks: IUCLID

### STOT - single exposure

#### Components:

##### 2,6-dichlorobenzonitrile:

Remarks : no data available

### STOT - repeated exposure

#### Components:

##### 2,6-dichlorobenzonitrile:

Remarks : no data available



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### Aspiration toxicity

#### Components:

##### 2,6-dichlorobenzonitrile:

No data available

### Experience with human exposure

#### Components:

##### 2,6-dichlorobenzonitrile:

Skin contact : Remarks: May be irritating on frequent or long-term contact.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Product:

##### Ecotoxicology Assessment

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

#### Components:

##### 2,6-dichlorobenzonitrile:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7,2 mg/l  
Exposure time: 96 h  
Remarks: IUCLID

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna): 6,2 mg/l  
Exposure time: 48 h  
Method: US-EPA  
Remarks: IUCLID

### 12.2 Persistence and degradability

#### Components:

##### 2,6-dichlorobenzonitrile:

Biodegradability : Biodegradation: ca. 25 %  
Exposure time: 28 d  
Remarks: Not readily biodegradable.  
Own study

### 12.3 Bioaccumulative potential

#### Product:

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow <= 4).

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### Components:

#### **2,6-dichlorobenzonitrile:**

Partition coefficient: n-  
octanol/water : log Pow: 2,7 (22 °C)

### 12.4 Mobility in soil

no data available

### 12.5 Results of PBT and vPvB assessment

#### Product:

Assessment : A PBT/vPvB evaluation is not available, since a chemical safety evaluation is not required / has not been carried out.

### 12.6 Other adverse effects

#### Product:

Additional ecological information : The product has phytotoxic effects (herbicide). Prevent penetration into soil, stretches of water and drainage systems. No further ecotoxicological data are available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Must be brought to an adequate waste treatment facility, in conformity with applicable waste disposal regulations.

Contaminated packaging : Packaging, that can not be reused after cleaning must be disposed or recycled in accordance with all federal, national and local regulations.

## SECTION 14: Transport information

### 14.1 UN number

ADR : UN 3077  
RID : UN 3077  
IMDG : UN 3077  
IATA : UN 3077

### 14.2 UN proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,6-dichlorobenzonitrile)  
RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2,6-dichlorobenzonitrile)

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**IMDG** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,  
N.O.S.  
(2,6-dichlorobenzonitrile)

**IATA** : Environmentally hazardous substance, solid, n.o.s.  
(2,6-dichlorobenzonitrile)

### 14.3 Transport hazard class(es)

**ADR** : 9

**RID** : 9

**IMDG** : 9

**IATA** : 9

### 14.4 Packing group

**ADR**  
Packing group : III  
Classification Code : M7  
Hazard Identification Number : 90  
Labels : 9

**RID**  
Packing group : III  
Classification Code : M7  
Hazard Identification Number : 90  
Labels : 9

**IMDG**  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F

**IATA (Cargo)**  
Packing instruction (cargo aircraft) : 956  
Packing instruction (LQ) : Y956  
Packing group : III  
Labels : Miscellaneous Dangerous Goods  
Remarks : ERG-Code 9L

**IATA\_P (Passenger)**  
Packing instruction (passenger aircraft) : 956  
Packing instruction (LQ) : Y956  
Packing group : III  
Labels : Miscellaneous Dangerous Goods  
Remarks : ERG-Code 9L

### 14.5 Environmental hazards

**ADR**  
Environmentally hazardous : yes

**RID**  
Environmentally hazardous : yes

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

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

### 15.2 Chemical safety assessment

A substance safety assessment was carried out for this product.

## 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 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

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es; (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

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.

REG\_EU / EN

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## Annex: Exposure Scenarios

### Table of Contents

Number	Title
ES 1	Worker (industrial) - Formulation and Re-Packing
ES 2	Worker (industrial) - Use as an Intermediate

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### ES 1: Worker (industrial) - Formulation and Re-Packing

#### 1.1. Title section

<b>Exposure Scenario name</b>	: Worker (industrial) - Formulation and Re-Packing
<b>Structured Short Title</b>	: Worker (industrial) - Formulation and Re-Packing

Environment		
<b>CS 1</b>	<b>Worker (industrial) - Formulation and Re-Packing</b>	ERC2
Worker		
<b>CS 2</b>	<b>Worker (industrial) - Formulation and Re-Packing</b>	PROC3
<b>CS 3</b>	<b>Worker (industrial) - Formulation and Re-Packing</b>	PROC8b
<b>CS 4</b>	<b>Worker (industrial) - Formulation and Re-Packing</b>	PROC9

#### 1.2. Conditions of use affecting exposure

##### 1.2.1. Control of environmental exposure: Formulation of preparations (ERC2)

Amount used (or contained in articles), frequency and duration of use/exposure	
Daily amount per site	: 6150 kg
Annual amount per site	: 615000 kg
Release type	: Continuous release
Emission days	: 100
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: See Section 13 of the Safety Data Sheet.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 18000 m <sup>3</sup> /d
Indoor or outdoor use	: Indoor use

##### 1.2.2. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics
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Covers concentrations up to 85 %	
Physical form of product	: Solid, high dustiness
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>	
Duration	: duration of activity < 1 h
<b>Technical and organisational conditions and measures</b>	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %	
<b>Other conditions affecting workers exposure</b>	
Body parts exposed	: <= 240 cm <sup>2</sup>
Indoor or outdoor use	: Indoor use.
Professional or industrial settings	: Industrial use
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: 5
<b>Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply</b>	
Basic Occupational Health and Safety Management System	

### 1.2.3. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers concentrations up to 85 %	
Physical form of product	: Solid, high dustiness
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>	
Duration	: duration of activity 4 h
<b>Technical and organisational conditions and measures</b>	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	



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Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %	
Wear a respirator conforming to EN140. Inhalation - minimum efficiency of 90 %	
<b>Other conditions affecting workers exposure</b>	
Body parts exposed	: <= 240 cm <sup>2</sup>
Indoor or outdoor use	: Indoor use.
Professional or industrial settings	: Industrial use
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: 5
<b>Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply</b>	
Basic Occupational Health and Safety Management System	

### 1.2.4. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

<b>Product (article) characteristics</b>	
Covers concentrations up to 85 %	
Physical form of product	: Solid, high dustiness
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>	
Duration	: duration of activity < 1 h
<b>Technical and organisational conditions and measures</b>	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %	
Wear a respirator conforming to EN140. Inhalation - minimum efficiency of 90 %	
<b>Other conditions affecting workers exposure</b>	
Body parts exposed	: <= 240 cm <sup>2</sup>
Indoor or outdoor use	: Indoor use.
Professional or industrial settings	: Industrial use
Temperature	: Covers use at ambient temperatures.

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Ventilation rate per hour : 5

**Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply**

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### 1.3. Exposure estimation and reference to its source

#### 1.3.1. Environmental release and exposure: Formulation of preparations (ERC2)

Protection Target	Exposure estimate	RCR
Freshwater	0,0000078 mg/L (EUSES)	0,004
Marine water	0,0000009 mg/L (EUSES)	0,005
Freshwater sediment	0,000215 mg/kg dry weight (EUSES)	0,004
Marine sediment	0,0000263 mg/kg dry weight (EUSES)	0,005
Predator's prey (freshwater)	0,00044 mg/kg KW (EUSES)	0,003
Agricultural soil	0,078 mg/kg dry weight (EUSES)	0,11
Non-agricultural soil	0,086 mg/kg dry weight (EUSES)	0,12
Predator's prey (terrestrial)	0,054 mg/kg KW (EUSES)	0,40

#### 1.3.2. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,13
inhalative	systemic	long-term	0,014 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0,18
combined routes	systemic	long-term		0,3

#### 1.3.3. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	1,37 mg/kg bw/day	0,25

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			(ECETOC TRA worker v3)	
inhalative	systemic	long-term	0,053 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0,66
combined routes	systemic	long-term		0,91

### 1.3.4. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	0,411 mg/kg bw/day (ECETOC TRA worker v3)	0,08
inhalative	systemic	long-term	0,021 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0,26
combined routes	systemic	long-term		0,34

### 1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

In addition to the displayed PROC all PROC could be regarded as safe uses that could be deduced from "PROC Inclusion Hierarchy" (CEFIC, 2011-07-13)

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

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### ES 2: Worker (industrial) - Use as an Intermediate

#### 2.1. Title section

<b>Exposure Scenario name</b>	: Worker (industrial) - Use as an Intermediate
<b>Structured Short Title</b>	: Worker (industrial) - Use as an Intermediate

Environment		
<b>CS 1</b>	<b>Worker (industrial) - Use as an Intermediate</b>	ERC6a
Worker		
<b>CS 2</b>	<b>Worker (industrial) - Use as an Intermediate</b>	PROC3
<b>CS 3</b>	<b>Worker (industrial) - Use as an Intermediate</b>	PROC8b

#### 2.2. Conditions of use affecting exposure

##### 2.2.1. Control of environmental exposure: Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a)

Amount used (or contained in articles), frequency and duration of use/exposure	
Daily amount per site	: 30750 kg
Annual amount per site	: 615000 kg
Release type	: Continuous release
Emission days	: 20
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: See Section 13 of the Safety Data Sheet.
Other conditions affecting environmental exposure	
Receiving surface water flow	: 18000 m <sup>3</sup> /d
Indoor or outdoor use	: Indoor use

##### 2.2.2. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics
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Covers concentrations up to 100 %	
Physical form of product	: Solid, medium dustiness
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>	
Duration	: duration of activity < 1 h
<b>Technical and organisational conditions and measures</b>	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	
Wear suitable gloves tested to EN374. Dermal - minimum efficiency of 90 %	
<b>Other conditions affecting workers exposure</b>	
Body parts exposed	: <= 240 cm <sup>2</sup>
Indoor or outdoor use	: Indoor use.
Professional or industrial settings	: Industrial use
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: 5
<b>Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply</b>	
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### 2.2.3. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

<b>Product (article) characteristics</b>	
Covers concentrations up to 100 %	
Physical form of product	: Solid, medium dustiness
<b>Amount used (or contained in articles), frequency and duration of use/exposure</b>	
Duration	: duration of activity < 4 h
<b>Technical and organisational conditions and measures</b>	
Local exhaust ventilation Inhalation - minimum efficiency of 90 %	
<b>Conditions and measures related to personal protection, hygiene and health evaluation</b>	

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Wear suitable gloves tested to EN374.

Dermal - minimum efficiency of 90 %

### Other conditions affecting workers exposure

Body parts exposed : <= 240 cm<sup>2</sup>

Indoor or outdoor use : Indoor use.

Professional or industrial settings : Industrial use

Temperature : Covers use at ambient temperatures.

Ventilation rate per hour : 5

**Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply**

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## 2.3. Exposure estimation and reference to its source

### 2.3.1. Environmental release and exposure: Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a)

Protection Target	Exposure estimate	RCR
Freshwater	0,0000078 mg/L (EUSES)	0,004
Marine water	0,0000009 mg/L (EUSES)	0,005
Freshwater sediment	0,000215 mg/kg dry weight (EUSES)	0,004
Marine sediment	0,0000263 mg/kg dry weight (EUSES)	0,005
Predator's prey (freshwater)	0,00044 mg/kg KW (EUSES)	0,003
Agricultural soil	0,157 mg/kg dry weight (EUSES)	0,22
Non-agricultural soil	0,171 mg/kg dry weight (EUSES)	0,24
Predator's prey (terrestrial)	0,107 mg/kg KW (EUSES)	0,80

### 2.3.2. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	0,686 mg/kg bw/day (ECETOC TRA worker v3)	0,13
inhalative	systemic	long-term	0,07 mg/m <sup>3</sup> (ECETOC TRA)	0,88

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			worker v3)	
combined routes	systemic	long-term		0,999

### 2.3.3. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,25
inhalative	systemic	long-term	0,035 mg/m <sup>3</sup> (ECETOC TRA worker v3)	0,44
combined routes	systemic	long-term		0,69

### 2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

In addition to the displayed PROC all PROC could be regarded as safe uses that could be deduced from "PROC Inclusion Hierarchy" (CEFIC, 2011-07-13)

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures. If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.