

# Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 985018	NANOCOLOR Chlorine dioxide 5	Page: 1/11
Printing date: 15.05.2024	Date of issue: 20.09.2022	Version: 2.2.3.2

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

### 1.1 Product identifier

REF 985018  
 Product name NANOCOLOR Chlorine dioxide 5

REACH Registration number(s): see SECTION 3.1/3.2 or  
 A registration number for the substance(s) does not exist because the annual tonnage does not require registration or the substance or its use is excluded from registration.

20 x 1.0 mL Chlorine dioxide 5 (R0)  
 1 x 20x 16 mg NANOFIX Chlorine dioxide 5 (R2) UFI: 4QMU-S30W-P20Y-QDCH

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

**Relevant identified uses**  
 Product for analytical use.  
 Exposure Scenario Classification according REACH, RIP 3.2 Codes: SU 0-2, PC 21, PROC 15, AC 0  
 The exposure scenario is integrated into sections 1-16.

**Uses advised against**  
 not described

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

**Manufactured by:**  
 MACHEREY-NAGEL GmbH & Co. KG  
 Valencienner Str. 11, 52355 Düren, Germany  
 Phone: +49 2421 969 0 E-mail: sds@mn-net.com (msds@mn-net.com)

### 1.4 Emergency telephone number

Outside Germany (DE): Call your regional Poisons Information Service or call local Life Saving Service.  
 DE: Gemeinsames Giftinformationszentrum (GGIZ)  
 99089 Erfurt tel. +49 361 730 730, <<https://www.ggiz-erfurt.de>>

You find our current versions of SDS in Internet: <<http://www.mn-net.com/SDS>>

## SECTION 2: Hazard identification

### 2.0 Classification of the complete product according to Regulation (EC) 1272/2008



GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H360FD	Repr. 1 B

### 2.1 Classification of the substance or mixture according to Regulation (EC) 1272/2008

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)



GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H360FD	Repr. 1 B



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## 1.0 mL Chlorine dioxide 5 (R0)

Signal word Do not need labelling as hazardous  
-

No hazard class

List of H phrases: see section 16.2

## 2.2 Label elements according regulation (EC) 1272/2008

According CLP directive inner packages must be only labelled with GHS symbol(s) and product identifier(s) (EU 1272/2008 Annex I - 1.5.1.2). Inner packages up to 10 mL need max. 2 symbols (Annex I - 1.5.2.4.1 / 2).

### 20x 16 mg NANOFIX Chlorine dioxide 5 (R2)



GHS08

Signal word: DANGER

H360FD

May damage fertility. May damage the unborn child.

P201, P202, P280sh, P308+313, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up. Dispose of contents/container to regulated waste treatment.

### 1.0 mL Chlorine dioxide 5 (R0)

Do not need labelling as hazardous

Signal word: -

## Label elements of the complete product



GHS08

Signal word: DANGER

H360FD

May damage fertility. May damage the unborn child.

P201, P202, P280sh, P308+313, P405, P501

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up. Dispose of contents/container to regulated waste treatment.

## 2.3 Other hazards

### Possible hazards from physicochemical properties

no data available

### Information pertaining to particular risks to human and possible symptoms

May damage fertility. May damage the unborn child.

### Information pertaining to particular risks to the environment

PBT: not applicable

vPvB: not applicable

### Possible endocrine disrupting effects

no data available



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## SECTION 3: Composition / information on ingredients

### 3.1 Substances or 3.2 Mixtures

#### 20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Substance name: *boric acid*  
 CAS No.: 10043-35-3

Substance rating: H360FD, Repr. 1 B  
 Formula: H<sub>3</sub>BO<sub>3</sub>  
 Pseudonym (de): Orthoborsäure, E284  
 REACH Reg. No.: 01-2119486683-25-0024  
**SVHC listed: listed (18/06/2010) Cand. Lst. REACH Art59(10)**  
 EC No.: 233-139-2 Index No.: 005-007-00-2  
 Concentration: 0,5 - <5,5 %  
 acc. CLP (GHS): H360FD, Repr. 1 B

Substance name: *N,N-Diethyl-1,4-phenylene diammonium sulfate*  
 CAS No.: 6283-63-2

Substance rating: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm.  
 Formula: C<sub>10</sub>H<sub>16</sub>N<sub>2</sub>•H<sub>2</sub>O  
 Pseudonym (de): DPD, 4-Amino-N,N-diethylanilin  
 EC No.: 228-500-6 Index No.: 612-080-00-X  
 Concentration: 5 - <10 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

#### 1.0 mL Chlorine dioxide 5 (R0)

Substance name: *N-cyclohexylsulfaminic acid, sodium salt*  
 CAS No.: 139-05-9

Substance rating: No criteria for classification or naming of chemical not required.  
 Formula: C<sub>6</sub>H<sub>12</sub>NNaO<sub>3</sub>S  
 Pseudonym (de): Cyclamat  
 EC No.: 205-348-9  
 Concentration: 1 - <10 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

Substance name: *phosphate buffer solution*  
 CAS No.: -

Substance rating: No criteria for classification or naming of chemical not required.  
 Formula: K/Na<sub>1-3</sub>H<sub>2-0</sub>PO<sub>4</sub>•xH<sub>2</sub>O  
 Concentration: 1 - <5 %  
 acc. CLP (GHS): The criteria for classification are not fulfilled.

### 3.3 Remarks

When not listed, mixtures are added with water [CAS No. 7732-18-5] to 100%.List of H and P phrases: see section 16.2.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

Place insured person out of danger zone to fresh air immediately. Ensure quiet, warmth, and provide resuscitation if necessary. If necessary contact medical advice.

#### 4.1.1 After SKIN Contact

Remove contaminated clothing. Rinse the affected skin or mucous membrane thoroughly under running water. (If possible) use soap.

#### 4.1.2 After EYE Contact

After contact with the eyes rinse thoroughly under running water with the eyelid wide open with eye washing bottle, eye douche or running water (protect intact eye).



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- 4.1.3 After INHALATION of vapours**  
After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. ---
- 4.1.4 After ORAL Intake**  
After oral intake lots of water should be drunk after it has been ingested.
- 4.2 Most important symptoms and effects, both acute and delayed**  
CMR Effekte:
- 4.3 Indication of any immediate medical attention and special treatment needed**  
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## SECTION 5: Firefighting measures

- 5.1 Extinguishing media**
  - 5.1.1 Suitable extinguishing media**  
Fire extinguishers appropriate to the fire classification, and, if applicable, a fire blanket must be available in a prominent location in the work area. All extinguishers like FOAM, WATER SPRAY, DRY POWDER, CARBON DIOXIDE can be used.
  - 5.1.2 Unsuitable extinguishing media**  
no data available
- 5.2 Special hazards arising from the substance or mixture**  
Formation of hazardous and caustic vapour-air mixtures possible.
- 5.3 Advice for firefighters**  
Product package burns like paper or plastic.
- 5.4 Additional information**  
no data available

## SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures**  
Do not breathe vapours. Wear suitable protective gloves (see 8.2.2). Regular staff training is necessary, indicating hazards and precautions on the basis of operating instructions. Restrictions on activity must be observed.
- 6.2 Environmental precautions**  
PBT: not applicable  
vPvB: not applicable
- 6.3 Methods and material for containment and cleaning up**  
Bind any escaping liquid with inert absorbent. And dispose in accordance to local regulations for the disposal of hazardous chemicals. Clean any contaminated equipment and floors with plenty of water. Collect small amounts of leaked liquid and flush with water into drains.
- 6.4 Reference to other sections**  
no data available

## SECTION 7: Handling and storage

- 7.1 Precautions for safe handling**  
Handling in accordance with the test instruction, that comes with the product. Use a safety bottle when shaking test tubes.
- 7.2 Conditions for safe storage, including any incompatibilities**  
Safe storage is guaranteed in the original packaging from MACHEREY-NAGEL. Products which are also classified as toxic must be kept under lock and key. Storage class (German chemical industry): see chapter 12.1  
Storage class (VCI): 6.1D  
Water hazard class (DE): 3
- 7.2.1 Requirements for stock rooms and containers**  
Keep original product packages tightly closed during handling and storage, so that they are not immediately accessible to outside parties.
- 7.3 Specific end use(s)**



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Product for analytical use.

## SECTION 8: Exposure controls /personal protection

### 8.1 Control parameters

<b>20x 16 mg NANOFIX Chlorine dioxide 5 (R2)</b>		
Chemical:	<i>boric acid</i>	CAS No.: 10043-35-3
DNEL:	[derm] 392 mg/kg bw/day; [inh] 8.3 mg/m <sup>3</sup>	
	<small>DNEL = Derived No-Effect Level (for workers)</small>	
PNEC (fresh water):	2.9 mg/L	
	<small>PNEC = Predicted No Effect Concentration</small>	
TRGS 900 (DE):	0.5 E mg/m <sup>3</sup>	
	<small>E/e respirable</small>	
Short-term exposure factor:	2 (I), Y	
	<small>skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded</small>	
SUVA(CH) MAK value:	[Bor][MAK] 1,8e/[STEL] 1,8e mg/m <sup>3</sup>	
NIOSH:	not listed	
	<small>[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period</small>	
OSHA:	not listed	
Chemical:	<i>N,N-Diethyl-1,4-phenylene diammonium sulfate</i>	CAS No.: 6283-63-2
NIOSH:	not listed	
	<small>[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period</small>	
OSHA:	not listed	
<b>1.0 mL Chlorine dioxide 5 (R0)</b>		
Chemical:	<i>N-cyclohexylsulfaminic acid, sodium salt</i>	CAS No.: 139-05-9
Chemical:	<i>phosphate buffer solution</i>	CAS No.: -

### 8.2 Exposure controls

Good ventilation and extraction system in the room, floor resistant to chemicals with floor drainage and washing facilities. The highest level of cleanliness must be maintained at the workplace.

- 8.2.1 Respiratory protection**  
No additional recommendations.
- 8.2.2 Skin protection / Hand protection**  
Yes, gloves according EN 374 (permeation time >30 min - level 2), consist of PVC, natural latex, Neopren, or Nitril (f.ex. from Ansell or KCL). Use for short times chemical resistant latex gloves with code EN 374-3 level 1.
- 8.2.3 Eye / Face Protection**  
Yes, safety glasses according EN 166 with integrated side shields or wrap-around protection.
- 8.2.4 Skin protection**  
Recommended to avoid contamination with these hazards.
- 8.2.5 Personal hygiene**  
Eating, drinking, smoking, taking snuff and storage of food in work areas and at outdoor workplaces is prohibited. Avoid contact with the skin, eyes and clothing. Rinse any clothing on which the substance has been spilled, and soak it in water. Wash hands thoroughly with soap and water when stopping work and before eating, and then apply protective skin cream.
- 8.2.6 Thermal hazards**  
no data available
- 8.3 Limitation and monitoring of environmental exposure**  
Do not release product into environment.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>20x 16 mg NANOFIX Chlorine dioxide 5 (R2)</b>	
a) State of aggregation:	solid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available



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h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	5-6
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-10 %
n) Dispersion coefficient (K <sub>o/w</sub> ):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

### 1.0 mL Chlorine dioxide 5 (R0)

a) State of aggregation:	liquid
b) Colour:	colourless
c) Odor:	odorless
d) Melting point:	no data available
e) Boiling point:	no data available
f) Flammability:	no data available
g) Explosive limits (lower / upper):	no data available
h) Flash point:	no data available
i) Flashing temperature:	no data available
j) Decomposition temperature:	no data available
k) pH value:	6
l) Kinematic viscosity:	no data available
m) Solubility in water:	0-100 %
n) Dispersion coefficient (K <sub>o/w</sub> ):	no data available
o) Vapour pressure (20°C):	no data available
p) Specific gravity:	no data available
q) Relative vapour density (air=1):	no data available
r) Particle size:	no data available

## 9.2 Other information

### 9.2.1 Information on physical hazard classes

no data available

### 9.2.2 Other safety-related parameters

No data is available for the other parameters for the mixtures, since no registration and no chemical safety report is required.

□ □

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no further data available.

### 10.2 Chemical stability

no known instability.

### 10.3 Possibility of hazardous reactions

No further data available.

### 10.4 Conditions to avoid

Observe the storage temperature printed on it. No more required.

### 10.5 Incompatible materials

no additional data available



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## 10.6 Hazardous decomposition products

In the original package all parts/all reagents are safety and separated stored. Decompositions are not observed during the expiration period under recommended conditions.

## SECTION 11: Toxicological information

### 11.1 Information on the hazard classes according regulation (EC) 1272/2008

Following information is valid for pure substances. Quantitative data on the toxicity of this product are not available.

#### 20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Chemical:	<i>boric acid</i>	CAS No.: 10043-35-3
TSCA Inventory:	listed	California Proposition 65 List: not listed
Australia NICNAS:	not listed	Canada CEPA 1999: DSL yes
Japan CSCL/PRTR:	PRTR: ≥1,0%B class I, Japan PDSCL: not listed	
Japan ISHL:	not listed	
South Korea TCCA:	not listed	
Korea Exist.Chem.Inventory:	KE-03499	
LD50 orl rat :	> 3765 mg/kg	
LC50 ihl rat :	2,12 mg/L/4H	

Carcinogenic Effects: May damage fertility. May damage the unborn child.

EU carcinogen:	R <sub>D</sub> 1B, R <sub>F</sub> 1B
TRGS 905 (DE):	R <sub>E</sub> 2, R <sub>F</sub> 2

Chemical:	<i>N,N-Diethyl-1,4-phenylene diammonium sulfate</i>	CAS No.: 6283-63-2
TSCA Inventory:	listed (CAS 6065-27-6)	California Proposition 65 List: not listed
Australia NICNAS:	not listed	Canada CEPA 1999: not listed
Japan CSCL/PRTR:	not listed, Japan PDSCL: not listed	
Japan ISHL:	not listed	
South Korea TCCA:	not listed	
LD50 orl rat :	497 mg/kg	

#### 1.0 mL Chlorine dioxide 5 (R0)

Chemical:	<i>N-cyclohexylsulfaminic acid, sodium salt</i>	CAS No.: 139-05-9
TSCA Inventory:	listed	
Korea Exist.Chem.Inventory:	not listed	
LD50 orl rat :	1280 mg/kg	
LD50 orl mus :	17000 mg/kg	

Chemical:	<i>phosphate buffer solution</i>	CAS No.: -
TSCA Inventory:	all listed	
Korea Exist.Chem.Inventory:	listed	

### 11.2 Other hazards

#### Possible endocrine disrupting effects

no data available

#### Other information

no additional data available

## SECTION 12: Ecological information

### 12.1 Toxicity

Following information is valid for pure substances.

#### 20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Substance name:	<i>boric acid</i>	CAS-Nr.: 10043-35-3
PNEC (fresh water) :	2.9 mg/L	
PNEC = Predicted No Effected Concentration = concentration at which no effect on the environment is expected		
LC50 fish/96h :	[4d] 79.7 mg/L	
EC50 daphnia/48h :	91-165 mg/L	
IC50 scenedesmus quadricauda/72h :	[72h] 52.4 mg/L	
EC10 pseudomonas putida/16h :	[EC10] 10 mg/L	
Water hazard class (DE):	1	WGK No.: 0315



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Storage class (VCI): 6.1 D

Substance name: *N,N-Diethyl-1,4-phenylene diammonium sulfate*

CAS-Nr.: 6283-63-2

Water hazard class (DE): 3

Storage class (VCI): 12-13

## 1.0 mL Chlorine dioxide 5 (R0)

Substance name: *N-cyclohexylsulfaminic acid, sodium salt*

CAS-Nr.: 139-05-9

Substance name: *phosphate buffer solution*

CAS-Nr.: -

Water hazard class (DE): 1

Storage class (VCI): 12

## 12.2 Persistence and degradability

## 12.3 Bioaccumulative potential

### 20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Substance name: *boric acid*

CAS-Nr.: 10043-35-3

Dispersion coefficient ( $K_{o/w}$ ):

-1,09

## 12.4 Mobility in soil

## 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

no data available

## 12.7 Other adverse effects

no additional data available

## SECTION 13: Disposal considerations

Please observe local regulations for collection and disposal of hazardous waste and contact waste disposal company, where you will obtain information on laboratory waste disposal (waste code number 16 05 06). Close container tightly.

### 13.1 Waste treatment methods

Not necessary, see above.

## SECTION 14: Transport information

14.1 - 14.4 Not necessary

### 14.5 Environmental hazards

none, contains only small quantities of hazardous substances

### 14.6 Special precautions for user

not necessary

### 14.7 Carriage in bulk by sea in accordance with IMO instruments

Not applicable.

## SECTION 15: Regulatory information

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

Chemicals Prohibition Ordinance - (DE: ChemVerbotsV), aktualisiert Jan 2017

Dangerous Substances Protection Act (DE: Chemikaliengesetz - ChemG), Aug 2013, Stand: Okt 2020

Ordinance on protection against dangerous substances (E: Gefahrstoffverordnung - GefStoffV), Nov 2010, Stand: Mrz 2017

TRGS 201, Classification and labeling of activities involving hazardous substances, Feb 2017

TRGS 220, National aspects when preparing safety data sheets, Jan 2017

TRGS 400, Risk assessment for activities involving hazardous substances, Jul 2017



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BekGS 408, Application of the GefStoffV and the TRGS with the entry into force of the CLP regulation, December 2009, status: Jan 2012

Wasserhaushaltsgesetz - WHG, Section 3 Handling substances hazardous to water, Jul 2009, status: Aug 2016

MN leaflet/instructions for use, also at [www.mn-net.com](http://www.mn-net.com)

If necessary, observe other country-specific regulations.

## 15.2 Chemical safety assessment

not necessary for these small amounts

## SECTION 16: Other information

### 16.1 Changes compared to the last version

Between versions 2.2.3.2 and 2.2.2.2 following changes were applied: - 1 composition data corrected

### 16.2 List of H and P phrases

#### 16.2.1 List of relevant H phrases

H Between versions 2.2.3.2 and 2.2.2.2 following changes were applied: - 1 composition data corrected  
H360FD May damage fertility. May damage the unborn child.

#### 16.2.2 List of relevant P phrases

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P280sh Wear protective gloves/eye protection.  
P308+313 IF exposed or concerned: Get medical advice/attention.  
P405 Store locked up.  
P501 Dispose of contents/container to regulated waste treatment.

### 16.3 Recommended restriction on use

Only for professional user.

Look about employee restrictions for young people (f. ex. 94/33/EC or DE § 22 JArbSchG)!

Look about employee restrictions for pregnant women and nursing women (f.ex. 92/85/EEC or for DE §§ 11-13 MuSchG 2017)!

An individual package of this product or test kit has a moderate hazardous potential.

### 16.4 Sources of key data

KÜHN, BIRETT, Leaflets on hazardous materials, 2021

Directive 1999/92/EG Minimum requirements to improve the safety and health protection of workers at risk from potentially explosive atmospheres

Directive 2004/37/EC on the protection of workers from the risk of carcinogens or mutagens at work SUVA .CH, limit values in the air at work 2009, revised on 01/2009

Regulation 790/2009/EU, adaptation of Regulation 1272/2008/EU to technical and scientific progress (1st ATP)

Regulation 453/2010/EU, adaptation of the REACH regulation 1907/2006/EG

Regulation 487/2013/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (4th ATP)

Regulation 1221/2015/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (7th ATP)

Regulation 776/2017/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (10th ATP)

TRGS 905, German rules of technology for carcinogenic and mutagenic substances, as of March 18, 2016

Regulation 669/2018/EU, adaptation of Regulation 1272/2008/EC to technical and scientific progress Text (11th ATP)

Regulation 1480/2018/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (13th ATP)

Regulation 521/2019/EU, adaptation of regulation 1272/2008/EG to technical and scientific progress (12th ATP)

TRGS 900, German rules of technology on limit values in the air at work, as of 03/2019

Regulation 217/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (14th ATP)

Regulation 878/2020/EU, adaptation of Annex II of the REACH regulation 1907/2006/EG

Regulation 1182/2020/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (15th ATP)

Regulation 643/2021/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (16th ATP)

Regulation 849/2021/EU, adaptation of Annex VI, Part 3, of Regulation 1272/2008/EC to technical and scientific progress (17th ATP)

Regulation 692/2022/EU, adaptation of Annex VI, Part 1, of Regulation 1272/2008/EC to technical and scientific progress (18th ATP)

#### revisions/updates

Reason for revision: 2014-02 Corrected structure of the sections according to Regulation 453/2010/EU, if necessary

2014-04 adjustment according Regulation 487/2013/EU

2016-03 adjustment according Regulation 1221/2015/EU

2017-11 adjustment according the ECHA registration dossier

2022-11 adjustment according Regulation 878/2020/EU



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# Safety Data Sheet

according to Regulations REACH 1907/2006/EC

REF: 985018

NANOCOLOR Chlorine dioxide 5

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## 16.5 Further information

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## 16.6 Legend / Abbreviations

acc: according  
ADR: Convention concerning the International Carriage of Dangerous Goods by Road  
Act: acute  
BAT: biological workplace tolerance value  
CAO: Cargo Aircraft Only  
Carc: carcinogen  
CAS: Chemical Abstracts Service  
CLP: Classification, Labelling and Packaging regulation  
CMR: carcinogen, mutagen, reproduction toxic  
Corr: corrosive  
COD: chemical oxygen demand  
CSCL: Chemical Substance Control Law (Jp)  
Dam: damage  
DNEL: Derived No-Effect Level (for workers)  
derm: dermal  
dog: dog  
EC10: Concentration causing a toxic effect in 10% of the test organisms  
EC: European Community  
EC-Nr: Substance number of the EC substance inventory  
EmS: Guide to accident management measures on ships  
EU: European Union  
fish: fish (not specified)  
GHS: Global Harmonized System of Classification and Labeling of Chemicals  
gpg: guinea pig  
ICAO: International Civil Aviation Organization  
ihl: inhaled  
IMDG: International Maritime Dangerous Goods Code  
intrav: intravenous  
ipt: intraperitoneal  
ISHL: Industrial Safety and Health Law (Jp)  
LC50: letale concentration 50%  
LD50: letale dosis 50%  
leuciscus idus: fisch, ide, orfe  
MAK: maximum workplace concentration  
Met: Metall  
mus: mouse  
Muta: mutagen  
NIOSH: National Institute for Occupational Safety and Health (US)  
NRD: Non-rapidly degradable  
onchorhynchus mykiss: fisch, rainbow trout  
orl: oral  
OSHA: Occupational Safety and Health Administration  
PAX: transport on passenger planes allowed  
PBT: persistent, bioaccumulating, toxic substance  
pH: pH value  
pimephales promelas: fisch, fathead minnow  
PNEC: Predicted No Effect Concentration  
PROC 15: Process category 'for laboratory use'  
PRTR: Law for PRTR and Promotion of Chemical Management (Jp)  
PVC: polyvinyl chloride  
quail: bird, quail  
rat: rat  
rbt: rabbit  
RD: rapidly degradable  
RE: repeated  
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals  
REF: item number, reference number  
Reg.No.: rRegistration number



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Repr: harmful to reproduction  
 Resp: respiratory  
 RIP: REACH Implementations Projects  
 scu: sub cutan  
 SDS: safety data sheet  
 Sens: sensitisation  
 STEL: short term exposure limit  
 STOT: Specific Target Organ Toxicity  
 SVHC: Substance of Very High Concern  
 t/a: tons per year  
 TCCA: Toxic Chemicals Control Act (S. Korea)  
 Tox: toxic  
 TSCA: The Toxic Substances Control Act (US)  
 TWA: time weighted average  
 TRGS: technical regulations (DE)  
 vPvB: very persistent, very bioaccumulating substance

## 16.7 Training advice

Regular safety training. Multiple safety training of staffs about danger and protection by using hazards in working area. Additionally training and introduction of staffs for using these products.



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