Safety Data Sheet

according to Regulations 1907/2006/EC (REACh) and 2015/830/EU

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

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)

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
Tel.: +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

You find our current versions of SDS (22 languages) in Internet: **http://www.mn-net.com/SDS**

SECTION 2: Hazard identification

2.0 Classification of the complete product

GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
H360FD	Repr. 1B

2.1 Classification of the substance or mixture

1.0 mL Chlorine dioxide 5 (R0)

Do not need labelling as hazardous

Signal word -

No hazard class

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

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Signal word DANGER

Hazard identification	Hazard classes/categories
H360FD	Repr. 1B

2.2 Label elements

According **CLP directive** inner packages must be only labelled with GHS symbol(s) and product identificator(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).

1.0 mL Chlorine dioxide 5 (R0)

Do not need labelling as hazardous
Signal word: -

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

GHS08

Signal word: DANGER

H360FD
May damage fertility. May damage the unborn child.

P201, P280sh, P308+313, P405
Obtain special instructions before use. Wear protective gloves/eye protection. IF exposed or concerned: Get medical advice/attention. Store locked up.

2.3 Other hazards

Possible hazards from physicochemical properties

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

Other hazards

SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

1.0 mL Chlorine dioxide 5 (R0)

Chemical: *N-cyclohexylsulfaminic acid, sodium salt* CAS No.: 139-05-9
Classification: No criteria for classification or naming of chemical not required.
Formula: $C_6H_{12}NNaO_3S$
Pseudonym: sodium cyclamate, N-cyclohexyl-sulfamic acid, sodium salt
TSCA Inventory: listed
EC No.: 205-348-9
RTECS: GV7350000
KE No.: not listed
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

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Chemical: *phosphate buffer solution* CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
Formula: $K/Na_{1-3}\,H_{2-0}\,PO_4 \cdot x\,H_2O$
TSCA Inventory: all listed
KE No.: listed
Concentration: 1 - <5 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Chemical: *boric acid* CAS No.: 10043-35-3
Classification: H360FD, Repr. 1B
Formula: $H_3\,BO_3$
TSCA Inventory: listed
REACH Reg. No.: 01-2119486683-25-0024
SVHC listed: **listed (18/06/2010)**
EC No.: 233-139-2 Indice No.: 005-007-00-2
RTECS: ED4550000 MFCD: 00011337
KE No.: KE-03499
Concentration: 0.5 - <5.5 % Correlation factor: x 0.17 (= %B)
The classification refers to weight percent of the metal (according to CLP Regulation 2008/1272/EC Annex VI, 1.1.3.2 Note 1)
acc. CLP (GHS): H360FD, Repr. 1B

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2
Classification: H302, Acute Tox. 4 oral, H312, Acute Tox. 4 derm.
Formula: $C_{10}\,H_{16}\,N_2 \cdot H_2O$
Pseudonym: N,N-diethylbenzene-1,4-diammonium sulfate
TSCA Inventory: listed (CAS 6065-27-6)
EC No.: 228-500-6 Indice No.: 612-080-00-X
RTECS: SS9625000 MFCD: 00012993
Concentration: 5 - <10 %
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 16.1

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).

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

4.3 Indication of any immediate medical attention and special treatment needed

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SECTION 5: Firefighting measures

5.1 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.

5.2 Special hazards arising from the substance or mixture

Formation of hazardous and caustic vapour-air mixtures possible. ---

5.3 Advice for firefighters

No, for listed product. Product package burns like paper or plastic.

5.4 Additional information

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

not necessary

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

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

The original product package of MACHEREY-NAGEL allows a safe storage. Products containing also toxic substances should be kept locked up.

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)

Product for analytical use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

1.0 mL Chlorine dioxide 5 (R0)

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

Chemical: *phosphate buffer solution* CAS No.: -

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Chemical: *boric acid* CAS No.: 10043-35-3

DNEL: [derm] 392 mg/kg bw/day; [inh] 8.3 mg/m³
DNEL = Derived No-Effect Level (for workers)

PNEC(fresh water) : 2.9 mg/L
PNEC = Predicted No Effected Concentration

TRGS 900 (DE): 0.5 E mg/m³
E/e respirable

Short-term exposure factor: 2 (I), Y

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skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: [Bor][MAK] 1,8e/[STEL] 1,8e mg/m³
NIOSH: not listed
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
OSHA: not listed

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2
NIOSH: not listed
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period
OSHA: not listed

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 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 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

1.0 mL Chlorine dioxide 5 (R0)

Appearance: liquid	Colour: colourless	Odor: odorless
pH:	6	
Solubility in water:	0-100 %	

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Appearance: solid	Colour: colourless	Odor: odorless
pH:	5-6	
Solubility in water:	0-10 %	

9.2 Other information

Data for the other parameters of the mixtures are not available, because no registration and no chemical safety report is required.
Relevant Properties of Substance Group

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
Not necessary. Observe labeled storage temperature. ---

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10.5 Incompatible materials

Avoid contact with strong acids or alkalines.

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 toxicological effects

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

1.0 mL Chlorine dioxide 5 (R0)

Chemical: *N-cyclohexylsulfaminic acid, sodium salt* CAS No.: 139-05-9
TSCA Inventory: listed
Korea Exist.Chem.Inventory: not listed

Chemical: *phosphate buffer solution* CAS No.: -
TSCA Inventory: all listed
Korea Exist.Chem.Inventory: listed

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Chemical: *boric acid* 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 mg/m³
$LD50_{drm\ rat}$: >2000 mg/kg

Carcinogenic Effects: May damage fertility. May damage the unborn child.
EU carcinogen: R_D 1B, R_F 1B
TRGS 905 (DE): R_E 2, R_F 2

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* 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

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

1.0 mL Chlorine dioxide 5 (R0)

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

Chemical: *phosphate buffer solution* CAS No.: -
Water hazard class (DE): 1
Storage class (VCI): 12

20x 16 mg NANOFIX Chlorine dioxide 5 (R2)

Chemical: *boric acid* CAS No.: 10043-35-3
$PNEC_{(fresh\ water)}$: 2.9 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: [4d] 79.7 mg/L
$EC50_{daphnia/48h}$: 91-165 mg/L

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$IC50_{scenedesmus\ quadricauda/72h}$: [72h] 52.4 mg/L
$EC10_{pseudomonas\ putita/16h}$: [EC10] 10 mg/L
Water hazard class (DE): 1 WGK No.: 0315
$Dispersion\ coefficient_{(octanol\text{-}water)}$: -1.09
Storage class (VCI): 6.1 D

Chemical: *N,N-Diethyl-1,4-phenylene diammonium sulfate* CAS No.: 6283-63-2
Water hazard class (DE): 3
Storage class (VCI): 12-13

12.2 Persistence and degradability
not necessary

12.3 Bioaccumulative potential
not necessary

12.4 Mobility in soil
not necessary

12.5 Results of PBT and vPvB assessment
no data available

12.6 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

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 Transport in bulk according to Annex II of MARPOL and the IBC Code
not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
German act governing protection from hazardous substances (Chemicals Act / Chemikaliengesetz- ChemG), revised on August 2013
German order governing protection from hazardous substances (Ordinance on Hazardous Substances / Gefahrstoffverordnung - GefStoffV), revised on November 2010, according to Directive 98/24/EC
TRGS 200, German engineering rules governing the classification and labelling of hazardous substances, preparations and products, updated October 2011
MN Leaflet/User manual, also see www.mn-net.com
Look for your country-specific regulations.

15.2 Chemical safety assessment
not necessary for these small amounts ---

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SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases

H360FD	May damage fertility. May damage the unborn child.

16.1.2 List of relevant P phrases

P201	Obtain special instructions before use.
P280sh	Wear protective gloves/eye protection.
P308+313	IF exposed or concerned: Get medical advice/attention.
P405	Store locked up.

16.2 Training advice

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.

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 Further information

MACHEREY-NAGEL GmbH & Co. KG provides the information contained herein in good faith being up-to-date of own realizations at revision time. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgement in determining its appropriateness for a particular purpose.
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16.5 Sources of key data

Regulation 790/2009/EU adaptation of CLP regulation 1272/2008/EU to technical and scientific progress
Regulation 453/2010/EU REACH - REQUIREMENTS FOR THE COMPILATION OF SAFETY DATA SHEETS
Regulation 487/2013/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 669/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 1480/2018/EU, 4th adaptation of CLP regulation to technical and scientific progress
Regulation 849/2021/EU, 4th adaptation of CLP regulation to technical and scientific progress
TRGS 900, German engineering rules governing limits in air at work, updated 03/2019
SUVA .CH, Limits in air at work 2009, revised on 01.2009
Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
TRGS 905, German engineering rules governing carcinogens and mutagens, updated 03/18
KÜHN, BIRETT Merkblätter Gefährliche Arbeitsstoffe (Data Sheets of Hazardous Substances)

Revisions/Updates
Reason for Revision: 2016-03 Adaptation of regulation 1221/2015/EU

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