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

1.1 Product identifier

REF 985031
Product name NANOCOLOR Cyanide 08

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 2 mL Cyanide 08 (R0)
1 x 11 mL Cyanide 08 (R3)
1 x 20x 12 mg NANOFIX Cyanide 08 (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

GHS05 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH031	031 not defined
H302	Acute Tox. 4 oral
H314	Skin Corr. 1B
H315	Skin Irrit. 2
H319	Eye Irrit. 2
H334	Resp. Sens. 1

2.1 Classification of the substance or mixture

2 mL Cyanide 08 (R0)

Do not need labelling as hazardous

Signal word -

No hazard class

11 mL Cyanide 08 (R3)

GHS07

Signal word WARNING

Hazard identification	Hazard classes/categories
H315	Skin Irrit. 2
H319	Eye Irrit. 2

20x 12 mg NANOFIX Cyanide 08 (R2)

GHS05 GHS07 GHS08

Signal word DANGER

Hazard identification	Hazard classes/categories
EUH031	031 not defined
H302	Acute Tox. 4 oral
H314	Skin Corr. 1B
H334	Resp. Sens. 1

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).

Harmful chemicals/mixtures with signal word: **WARNING** must not be labelled with H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2). This labelling exemption is NOT valid for sensibilizing substances.

2 mL Cyanide 08 (R0)

Do not need labelling as hazardous
Signal word: -

11 mL Cyanide 08 (R3)

GHS07

Signal word: WARNING

20x 12 mg NANOFIX Cyanide 08 (R2)

GHS05 GHS07 GHS08

Signal word: DANGER

H314, H334
Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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P260sh, P280sh, P303+361+353, P305+351+338, P310
Do not breathe dust/vapours. Wear protective gloves/eye protection. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

2.3 Other hazards

Possible hazards from physicochemical properties
Generally in the case of pH values are less than 2 or higher than 11.5 then it is corrosive. In the case of pH values are less than 5 or higher than 9 then it is irritant. ---

Information pertaining to particular risks to human and possible symptoms
Causes varying degrees of acid burns on the skin, to the eyes and to the mucous membranes and wounds which do not heal quickly depending on the concentration, temperature and the exposure time. Vapours especially which steam from hot liquids and mist can have a severe irritant effect upon the eyes and the respiratory organs.
Cause after oral intake, impairments of health when ingested in small quantities. May cause allergy or asthma symptoms or breathing difficulties if inhaled. -

Information pertaining to particular risks to the environment
Avoid contact of substance/mixture to environment.
PBT: not applicable
vPvB: not applicable

Other hazards

SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

2 mL Cyanide 08 (R0)

Chemical: *citrate buffer solution* — CAS No.: -
Classification: No criteria for classification or naming of chemical not required.
TSCA Inventory: all listed
KE No.: listed
Concentration: 10 - <25 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

11 mL Cyanide 08 (R3)

Chemical: *sodium hydroxide solution* (diluted < 2 %) — CAS No.: 1310-73-2d
Classification: H314, Skin Corr. 1B
Formula: $NaOH \cdot H_2O$
Pseudonym: diluted soda lye
TSCA Inventory: listed
REACH Reg. No.: 01-2119457892-27-xxxx
EC No.: 215-185-5 — Indice No.: 011-002-00-6
RTECS: WB4900000
KE No.: KE-31487
Concentration: 1 - <2 %
acc. CLP (GHS): H315, Skin Irrit. 2, H319, Eye Irrit. 2

Chemical: *pyridine-4-carbonic acid (isonicotinic acid)* — CAS No.: 55-22-1
Classification: H303, Acute Tox. 5 oral, H315, Skin Irrit. 2, H319, Eye Irrit. 2
Formula: $C_6H_5NO_2$
Pseudonym: 4-Pyridinecarboxylic acid
TSCA Inventory: listed
EC No.: 200-228-2
RTECS: NS1103000 — MFCD: 00006429
Concentration: 1 - <10 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

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Chemical: *1,3-dimethylbarbituric acid* CAS No.: 769-42-6
Classification: H302, Acute Tox. 4 oral, H318, Eye Dam. 1
Formula: $C_6 H_8 N_2 O_3$
Pseudonym: 1,3-dimethyl-2,4,6(1H,3H,5H)-pyrimidinetrione
TSCA Inventory: listed
EC No.: 212-211-7 MFCD: 00006675
Concentration: 3 - <20 %
acc. CLP (GHS): The criteria for classification are not fulfilled.

20x 12 mg NANOFIX Cyanide 08 (R2)
Chemical: *chloramine T* CAS No.: 127-65-1
Classification: H302, Acute Tox. 4 oral, H314, Skin Corr. 1B, H334, Resp. Sens. 1, EUH031, 031 not defined
Formula: $C_7 H_7 ClNNaO_2 S$
Pseudonym: tosylchloramide sodium, Benzenesulfonamide, N-chloro-4-methyl-benzenesulfonamide, sodium salt
TSCA Inventory: listed
EC No.: 204-854-7 Indice No.: 616-010-00-9
RTECS: XT5616800 MFCD: 00000522
KE No.: 2000-3-1539
Concentration: 17 - <30 %
acc. CLP (GHS): H302, Acute Tox. 4 oral, H314, Skin Corr. 1B, H334, Resp. Sens. 1, EUH031, 031 not defined

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. Remove contaminated clothing. Show product package, packing insert and this material safety data sheet to the doctor. Take to a doctor, in a raised position if there are breathing difficulties.

4.1.1 After SKIN Contact
Remove contaminated clothing immediately. Rinse the affected skin or mucous membrane thoroughly for min. 15 minutes under running water. (If possible) use soap. Avoid neutralisation. Then apply a loose bandage.

4.1.2 After EYE Contact
After contact with the eyes rinse thoroughly under running water with the eyelid wide open for min. 10 minutes with eye washing bottle, eye douche or running water (protect intact eye). Before (if possible) apply eye drops Proxymetacaine 0.5%, if the opening the eyelid convulsion is painful. Further treatment to be carried out by an eye specialist.

4.1.3 After INHALATION of vapours
After inhalation of foam or vapour fresh air should be inhaled. Keep airways free. If vomiting and if insensible place patient in recovery position and keep airways free. Administer a Dexamethasone spray as soon as possible. Ensure quiet, warmth, and provide resuscitation if necessary. In the event of respiratory distress ensure that the patient inhales oxygen. Secure the breathing, heart and circulatory function. ---

4.1.4 After ORAL Intake
After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested. Do not induce vomiting under any circumstances. Do not make any efforts to neutralise it. Contact medical advice for possible consequences. ---

4.2 Most important symptoms and effects, both acute and delayed

Chronic Effects: May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled. ---

4.3 Indication of any immediate medical attention and special treatment needed

CORROSIVE DAMAGE: After SKIN CONTACT rinse with water for a long time. Efforts to neutralise the substance can frequently make matters worse. Apply glucocorticosteroides following inflammatory reactions. After EYE CONTACT rinse immediately with plenty of water for a long time. Eyelid convulsion measures. Name the corrosive chemical. Further treatment must to be carried out by an eye specialist. After INTAKE administer aluminium oxide drug suspensions. Administer a prophylaxis to counter pulmonary oedema following the INGESTION of corrosive aerosols. In the event of RESPIRATORY DISTREES ensure that the patient inhales oxygen. Inform patient respectively further measures and the possibility of long-term damages. ---

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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. Spray any vapours released with water. Retent fire water. Use only acid-resistant safety equipment.
For great amount - if necessary - protective breathing apparatus which is independent of the ambient air (isolated equipment), and sealed protective clothing is necessary in the event of a large-scale formation of toxic substances.

5.4 Additional information

Danger for environment **only in the event of a large-scale leakage** or formation of hazardous substances. ---

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). Wear eye protection, respectively face protection. 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

see information in section 5.4 ---

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Handling in accordance with the test instruction, that comes with the product. Use only in well-ventilated working areas. 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.

Storage class (VCI):	8A
Water hazard class (DE):	2

7.2.1 Requirements for stock rooms and containers

Keep original product packages tightly closed during handling and storage. Use inbreakable container for transport of glass bottles.

7.3 Specific end use(s)

Product for analytical use.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

2 mL Cyanide 08 (R0)
Chemical: *citrate buffer solution* CAS No.: -

11 mL Cyanide 08 (R3)
Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2d

Chemical: *pyridine-4-carbonic acid (isonicotinic acid)* CAS No.: 55-22-1

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Chemical: *1,3-dimethylbarbituric acid* CAS No.: 769-42-6

20x 12 mg NANOFIX Cyanide 08 (R2)
Chemical: *chloramine T* CAS No.: 127-65-1
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
Use for open access of these substances for example a protection filter, class A/AX. 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 or face protection.

8.2.4 Skin protection
Recommended to avoid clothing damage, and 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

2 mL Cyanide 08 (R0)

Appearance: liquid	Colour: colourless	Odor: fusty, mouldy
pH:	5,6	
Solubility in water:	0-100 %	

11 mL Cyanide 08 (R3)

Appearance: liquid	Colour: yellow	Odor: odorless
Solubility in water:	0-100 %	

20x 12 mg NANOFIX Cyanide 08 (R2)

Appearance: solid	Colour: colourless	Odor: chloric
pH:	5-7	
Solubility in water:	0-50 %	

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

Strong CORROSIVE, no further data available.

10.2 Chemical stability

No known instability.

10.3 Possibility of hazardous reactions

Can react violently with organic material. No further data available.

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10.4 Conditions to avoid

Not necessary. Observe labeled storage temperature. ---

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.

2 mL Cyanide 08 (R0)

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

11 mL Cyanide 08 (R3)

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2d
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: -
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥1,0%/≥1,0% SDS required
Korea Exist.Chem.Inventory: KE-31487
$LD50_{orl\ rat}$: [< 1%] > 50 g/kg
$LD50_{drm\ rbt}$: not applicable
$LD50_{orl\ mus}$: [< 1%] > 4 g/kg

Chemical: *pyridine-4-carbonic acid (isonicotinic acid)* CAS No.: 55-22-1
TSCA Inventory: listed
$LD50_{orl\ rat}$: 5000 mg/kg

Chemical: *1,3-dimethylbarbituric acid* CAS No.: 769-42-6
TSCA Inventory: listed
$LD50_{orl\ rat}$: 1780 mg/kg

20x 12 mg NANOFIX Cyanide 08 (R2)

Chemical: *chloramine T* CAS No.: 127-65-1
TSCA Inventory: listed California Proposition 65 List: not listed
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: not listed
South Korea TCCA: not listed
Korea Exist.Chem.Inventory: 2000-3-1539
$LD50_{orl\ rat}$: ~1000 mg/kg
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.
Chronic Effects: May cause sensitization by skin contact, also in repeated contact of small amounts. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

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SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

2 mL Cyanide 08 (R0)

Chemical: *citrate buffer solution* CAS No.: -
Water hazard class (DE): 0
Storage class (VCI): 12

11 mL Cyanide 08 (R3)

Chemical: *sodium hydroxide solution* CAS No.: 1310-73-2d
$LC50_{leuciscus\ idus/96h}$: 35-189 mg/L
$LC50_{fish/96h}$: 45.4 mg/L
$EC50_{daphnia/48h}$: >100 mg/L
Water hazard class (DE): nwg WGK No.: 0142
Storage class (VCI): 12-13

Chemical: *pyridine-4-carbonic acid (isonicotinic acid)* CAS No.: 55-22-1
Water hazard class (DE): 1
Storage class (VCI): 12-13

Chemical: *1,3-dimethylbarbituric acid* CAS No.: 769-42-6
Water hazard class (DE): 2
Storage class (VCI): 12-13

20x 12 mg NANOFIX Cyanide 08 (R2)

Chemical: *chloramine T* CAS No.: 127-65-1
Avoid contact of substance/mixture to environment.
Water hazard class (DE): 2 WGK No.: 0640
Storage class (VCI): 8 A

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).

13.1 Waste treatment methods

SECTION 14: Transport information

14.1. UN number: 3316 14.2. UN proper shipping name: Chemical Kit
14.3. Class: 9 14.4. Packing group: II

Road transport
Classification code: M11 Tunnel restriction code: E
Limited Quantity: acc. ADR 3.3.1/251: see LQ in Alternative declaration for transportation
Air transport
PAX: 960 max. weight PAX: 10 KG
CAO: 960 max. weight CAO: 10 KG
Maritime transport
EmS: F-A, S-P Storage category: A

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Or use **Alternative declaration for transportation:**
UN No.: (see below) class 8 II, **Excepted Quantities** (≤30 mL/∑≤500 mL) = ADR/ IATA E2
or

14.1 UN number: 3266 14.2 UN proper shipping name: Corrosive liquid, basic, inorganic, n.o.s. (sodium hydroxide solution)
14.3 Class: 8 14.4 Packing group: II

Road transport

Classification code:	C5		
Limited Quantity:	1 L	Tunnel restriction code:	E
Excepted Quantity:	E 2		

Air transport

PAX:	851	max. weight PAX:	1 L
CAO:	855	max. weight CAO:	30 L

Maritime transport

EmS:	F-A, S-B	Storage category:	B

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 ---

SECTION 16: Other information

16.1 List of H and P phrases

16.1.1 List of relevant H phrases

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
EUH031	Contact with acids liberates toxic gas.

16.1.2 List of relevant P phrases

P260D	Do not breathe vapours.
P260sh	Do not breathe dust/vapours.
P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P330	Rinse mouth.
P342+311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

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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 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
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Revisions/Updates
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