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

1.1 Product identifier

REF 931292
Product name VISOCOLOR ECO Sulfate, refill pack

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.

2 x 25 mL SO_4 -1
1 x 25 g SO_4 -2

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



GHS06 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1
H301	Acute Tox. 3 oral
H302	Acute Tox. 4 oral
H319	Eye Irrit. 2
H332	Acute Tox. 4 inh.

2.1 Classification of the substance or mixture

25 mL SO_4 -1

Do not need labelling as hazardous
Signal word -

Hazard identification	Hazard classes/categories
H290	Met. Corr. 1

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Version: M V 4.12.0

25 g SO_4 -2



GHS06 GHS07

Signal word DANGER

Hazard identification	Hazard classes/categories
H301	Acute Tox. 3 oral
H302	Acute Tox. 4 oral
H319	Eye Irrit. 2
H332	Acute Tox. 4 inh.

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).

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).
Metal corrosive solutions**do not have to** be labelled with GHS symbol, signal word, H and P phrases **until 125 mL** (EU 1272/2008 Annex I - 1.5.2.1.3).

25 mL SO_4 -1

Do not need labelling as hazardous
Signal word: -

25 g SO_4 -2



GHS06 GHS07

Signal word: DANGER

H301
Toxic if swallowed.

P280sh, P301+310, P405
Wear protective gloves/eye protection. IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Store locked up.

2.3 Other hazards

Possible hazards from physicochemical properties
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
Cause severe after oral intake, impairments of health or can lead to death even when only ingested in small quantities. Cause after oral intake, impairments of health when ingested in small quantities. -

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

Other hazards

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SECTION 3: Composition/information on ingredients

3.1 Substances or 3.2 Mixtures

25 mL SO_4 -1

Chemical: *hydrochloric acid* — CAS No.: 7647-01-0
Classification: H290, Met. Corr. 1, H314, Skin Corr. 1B, H331, Acute Tox. 3 inh.
Formula: $HCl•H_2O$
Pseudonym: aqueous hydrogen chloride
TSCA Inventory: listed
REACH Reg. No.: 01-2119484862-27-xxxx
EC No.: 231-595-7 — Indice No.: 017-002-01-X
RTECS: MW4025000
KE No.: KE-20189, >10% Toxic 97-1-203, Acc. Precaution Chem.
Concentration: 1 - <10 %
acc. CLP (GHS): H290, Met. Corr. 1

25 g SO_4 -2

Chemical: *barium chloride* — CAS No.: 10361-37-2
Classification: H301, Acute Tox. 3 oral, H332, Acute Tox. 4 inh.
Formula: $BaCl_2$
Pseudonym: barium dichloride
TSCA Inventory: listed
REACH Reg. No.: 01-2119502547-42-xxxx
EC No.: 233-788-1 — Indice No.: 056-004-00-8
RTECS: CQ8751000 — MFCD: 00003445
KE No.: KE-02037
Concentration: 40 - <60 % — Correlation factor: x 0.66 (= %Ba)
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): H301, Acute Tox. 3 oral, H332, Acute Tox. 4 inh.

Chemical: *ammonium chloride* — CAS No.: 12125-02-9
Classification: H302, Acute Tox. 4 oral, H319, Eye Irrit. 2
Formula: NH_4Cl
TSCA Inventory: listed
REACH Reg. No.: 01-2119487950-27-xxxx
EC No.: 231-211-8 — Indice No.: 017-014-00-8
RTECS: BP4550000 — MFCD: 00011420
KE No.: KE-01645
Concentration: 40 - <70 %
acc. CLP (GHS): H302, Acute Tox. 4 oral, H319, Eye Irrit. 2

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.

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. If vomiting and if insensible place patient in recovery position and keep airways free. ---

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4.1.4 **After ORAL Intake**
After oral intake lots of water with activated charcoal supplement should be drunk after it has been ingested. ---

4.2 Most important symptoms and effects, both acute and delayed

---

4.3 Indication of any immediate medical attention and special treatment needed

TOXIFICATION: Treat symptomatically. Secure the breathing, heart and circulatory function. Remove the substance quickly from the body. Mechanically induce vomiting or ensure the patient eats medicinal charcoal compressed tablets or drinks aluminium oxide drug suspensions. In order to ensure rapid passage through the colon (administer 2 tablespoons of dissolved Glauber's salt). Alleviation of pain, if necessary sedation. Shock treatment. Administer a prophylaxis to counter pulmonary oedema. ---

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). 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.

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):	8B
Water hazard class (DE):	1

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. Use inbreakable container for transport of glass bottles.

7.3 Specific end use(s)

Product for analytical use.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

25 mL SO_4 -1

Chemical: *hydrochloric acid* CAS No.: 7647-01-0

DNEL: [inh] 8 mg/m³
DNEL = Derived No-Effect Level (for workers)

$PNEC_{(fresh\ water)}$: 36 µg/L
PNEC = Predicted No Effected Concentration

EU value: [TWA] 5 ppm / 8 mg/m³ ; [STEL] 10 ppm/ 15 mg/m³

TRGS 900 (DE): 2 mL/m³ / 3 mg/m³
E/e respirable

Short-term exposure factor: 2 (I), Y
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 2 ppm / 3* mg/m³

NIOSH: [C] 5 ppm / 7 mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: List of highly hazardous chemicals, toxics and reactives Yes (TQ = 5000 lbs) n/a; TWA 5 ppm / 7 mg/m³

25 g SO_4 -2

Chemical: *barium chloride* CAS No.: 10361-37-2

EU value: 0.5_{Ba} e mg/m³

TRGS 900 (DE): $0,5_{Ba}$ E mg/m³
E/e respirable

Short-term exposure factor: 1 (I)
skin resorptive (H), respiratory sensitizable (Sa), skin sensitizable (Sh), teratogenic (Z) not securely excluded / (Y) certainly excluded

SUVA(CH) MAK value: 0,5 e mg/m³

NIOSH: TWA 0.5_{Ba} mg/m³
[TWA] Time-weighted average to a reference period of 8 hours, [STEL] Short-term exposure limit related to a 15-minute period

OSHA: TWA 0.5_{Ba} mg/m³

Chemical: *ammonium chloride* CAS No.: 12125-02-9

DNEL: 128.9_{derm} mg/kg
DNEL = Derived No-Effect Level (for workers)

$PNEC_{(fresh\ water)}$: 0.25 mg/L
PNEC = Predicted No Effected Concentration

SUVA(CH) MAK value: 3 a mg/m³

NIOSH STEL: 20 mg/m³

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.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

25 mL SO_4 -1

Appearance: liquid	Colour: colourless	Odor: penetrative
pH:	0-1	
Specific gravity:	1,04 g/cm³	
Solubility in water:	0-100 %	

25 g SO_4 -2

Appearance: powder (solid)	Colour: colourless	Odor: odorless
pH:	6-7	

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. ---

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.

25 mL SO_4 -1

Chemical: *hydrochloric acid* CAS No.: 7647-01-0
TSCA Inventory: listed California Proposition 65 List: not listed
Exposure Routes: inhalation, ingestion (solution), skin and/or eye contact
Target Organs: Eyes, skin, respiratory system
Symptoms: irritation nose, throat, larynx; cough, choking; dermatitis; solution: eye, skin burns; liquid: frostbite; in animals: laryngeal spasm; pulmonary ede
Australia NICNAS: not listed Canada CEPA 1999: DSL Yes
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious Substance
Japan ISHL: listed ≥0,2%/≥0,1%, Article 57-2 (SDS required)
South Korea TCCA: Accident Precaution Chemical Yes
Korea Exist.Chem.Inventory: KE-20189, >10% Toxic 97-1-203, Acc. Precaution Chem.
$LD50_{orl\ rat}$: 900 mg/kg
$LC50_{drm\ rbt}$: >5010 mg/kg

25 g SO_4 -2

Chemical: *barium chloride* CAS No.: 10361-37-2
TSCA Inventory: listed
Exposure Routes: inhalation, ingestion, skin and/or eye contact
Target Organs: Eyes, skin, respiratory system, heart, central nervous system

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Symptoms: irritation eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse, extrasystoles; hypokalemia
Japan CSCL/PRTR: not listed, Japan PDSCL: Deleterious substance
Japan ISHL: listed ≥1,0%/≥1,0%
Korea Exist.Chem.Inventory: KE-02037
$LD50_{orl\ rat}$: 118 mg/kg
$LC_Low_{orl\ hmn}$: 11.4 mg/kg
Acute Effects: Cause severe after oral intake, impairments of health or can lead to death even when only ingested in small quantities. Acute Effects: Cause after skin contact, impairments of health when ingested in small quantities.

Chemical: *ammonium chloride* CAS No.: 12125-02-9
TSCA Inventory: listed
Japan CSCL/PRTR: not listed, Japan PDSCL: not listed
Japan ISHL: listed ≥1,0%/≥1,0%,
Korea Exist.Chem.Inventory: KE-01645
$LD50_{orl\ rat}$: 1440 mg/kg
$LC_Low_{orl\ rbt}$: 1000 mg/kg
$LC50_{ihl\ rat}$: 1000 ppm/4h
$LD50_{orl\ mus}$: 1300 mg/kg
Acute Effects: Cause after oral intake, impairments of health when ingested in small quantities.

SECTION 12: Ecological information

12.1 Toxicity

Following information is valid for pure substances.

25 mL SO_4 -1

Chemical: *hydrochloric acid* CAS No.: 7647-01-0
$PNEC_{(fresh\ water)}$: 36 µg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: 24.6 mg/L
$EC50_{daphnia/48h}$: 0.492 mg/L
$EC50_{pseudokirchneriella\ subcapitata/72h}$: 0.78 mg/L
Water hazard class (DE): 1 WGK No.: 0238
Storage class (VCI): 8 B

25 g SO_4 -2

Chemical: *barium chloride* CAS No.: 10361-37-2
Avoid contact of substance/mixture to environment.
$LC50_{leuciscus\ idus/96h}$: 870 mg/L
$EC50_{daphnia/48h}$: 21.9 mg/L
Water hazard class (DE): 1 WGK No.: 0025
Storage class (VCI): 6.1 B

Chemical: *ammonium chloride* CAS No.: 12125-02-9
$PNEC_{(fresh\ water)}$: 0.25 mg/L
PNEC = Predicted No Effected Concentration
$LC50_{fish/96h}$: 42.9 mg/L
$EC50_{daphnia/48h}$: 136.6 mg/L
$EC50_{chlorella\ vulgaris/5d}$: EC50/5d: 1300 mg/L
Water hazard class (DE): 1 WGK No.: 0213
$Dispersion\ coefficient_{(octanol\text{-}water)}$: -4.37
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

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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

Normally it is possible to empty small amounts (diluted!) into drains.
Dispose of contents/container to regulated waste treatment.

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

Or use **Alternative declaration for transportation:**
UN No.: (see below) class 6.1 III, **Excepted Quantities** (≤30 mL/∑≤1 L) = ADR/ IATA E1
or
14.1 UN number: 1564 14.2 UN proper shipping name: Barium compound, n.o.s.
14.3 Class: 6.1 14.4 Packing group: III

Road transport

Classification code:	T5		
Limited Quantity:	5 Kg	Tunnel restriction code:	E
Excepted Quantity:	E 1	Special instructions:	513

Air transport

PAX:	670	max. weight PAX:	100 Kg
CAO:	677	max. weight CAO:	200 Kg

Maritime transport

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

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

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

16.1.2 List of relevant P phrases

P261sh	Avoid breathing dust/vapours.
P264W	Wash with water thoroughly after handling.
P280sh	Wear protective gloves/eye protection.
P301+310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P301+312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330	Rinse mouth.
P390	Absorb spillage to prevent material damage.
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 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
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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