

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.04.2017

Version 12.1

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant®
	N
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	7664-93-9

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number	Please contact the regional company representation in your country.
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SECTION 2. Hazards identification**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Corrosive to metals, Category 1, H290

Skin corrosion, Category 1A, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

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P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sulphuric acid

Index-No. 016-020-00-8

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	H ₂ SO ₄	H ₂ O ₄ S (Hill)
Index-No.	016-020-00-8	
EC-No.	231-639-5	
Molar mass	98,08 g/mol	

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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sulphuric acid (>= 50 % - <= 100 %)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

7664-93-9	01-2119458838-20-
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XXXX

Corrosive to metals, Category 1, H290

Skin corrosion, Category 1A, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixture

Not applicable

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SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath, Nausea, Vomiting, Diarrhoea, pain, Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system. Suppress (knock down) gases/vapours/mists with a water spray jet.

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SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions

Do not empty into drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralising material (e.g. Chemisorb® H⁺, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Change contaminated clothing and immerse in water. Preventive skin protection Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

No metal containers.

Storage conditions

Tightly closed. Away from combustible materials and sources of ignition and heat.

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

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Derived No Effect Level (DNEL)

sulphuric acid (7664-93-9)

Worker DNEL, acute Local effects inhalation 0,1 mg/m³

Worker DNEL, longterm Local effects inhalation 0,05 mg/m³

Predicted No Effect Concentration (PNEC)

sulphuric acid (7664-93-9)

PNEC Fresh water 0,0025 mg/l

PNEC Fresh water sediment 0,002 mg/kg

PNEC Marine water 0,00025 mg/l

PNEC Marine sediment 0,002 mg/kg

PNEC Sewage treatment plant 8,8 mg/l

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material: Viton (R)
Glove thickness: 0,7 mm
Break through time: > 480 min

splash contact:

Glove material: butyl-rubber
Glove thickness: 0,7 mm
Break through time: > 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 890 Vitoject® (full contact), KCL 898 Butoject® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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This recommendation applies only to the product stated in the safety data sheet(>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

Acid-resistant protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not empty into drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	0,3 at 49 g/l 25 °C
Melting point	-20 °C
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable

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Vapour pressure	ca.0,0001 hPa at 20 °C
Relative vapour density	ca.3,4
Density	1,84 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble, (caution ! development of heat)
Partition coefficient: n- octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	ca.24 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	Oxidizing potential

9.2 Other data

Ignition temperature	Not applicable
Bulk density	Not applicable
Corrosion	May be corrosive to metals.

SECTION 10. Stability and reactivity

10.1 Reactivity

has a corrosive effect
strong oxidising agent

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

A risk of explosion and/or of toxic gas formation exists with the following substances:

Violent reactions possible with:

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Water, Alkali metals, alkali compounds, Ammonia, Aldehydes, acetonitrile, Alkaline earth metals, alkalines, Acids, alkaline earth compounds, Metals, metal alloys, Oxides of phosphorus, phosphorus, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvent, acetylidene, Nitriles, organic nitro compounds, anilines, Peroxides, picrates, nitrides, lithium silicide, iron(III) compounds, bromates, chlorates, Amines, perchlorates, hydrogen peroxide

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

animal/vegetable tissues, Metals
Contact with metals liberates hydrogen gas.

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

This information is not available.

Acute inhalation toxicity

This information is not available.

Acute dermal toxicity

This information is not available.

Skin irritation

Causes severe burns.

Eye irritation

Causes serious eye damage. Risk of blindness!

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

Did not show teratogenic effects in animal experiments. (IUCLID)

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

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11.2 Further information

After inhalation of aerosols: damage to the affected mucous membranes. After skin contact: severe burns with formation of scabs. After eye contact: burns, corneal lesions. After swallowing: severe pain (risk of perforation!), nausea, vomiting and diarrhoea. After a latency period of several weeks possibly pyloric stenosis.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Additional ecological information

Biological effects:

Forms corrosive mixtures with water even if diluted.

Harmful effect due to pH shift.

Endangers drinking-water supplies if allowed to enter soil or water.

Further information on ecology

Discharge into the environment must be avoided.

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SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number UN 3316
14.2 Proper shipping name CHEMICAL KIT
14.3 Class 9
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
Tunnel restriction code E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number UN 3316
14.2 Proper shipping name CHEMICAL KIT
14.3 Class 9
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user no

Sea transport (IMDG)

14.1 UN number UN 3316
14.2 Proper shipping name CHEMICAL KIT
14.3 Class 9
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-A S-P

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

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SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard 96/82/EC
Legislation Directive 96/82/EC does not apply

SEVESO III
Not applicable

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w).

National legislation

Storage class 5.1 B
The data applies to the entire pack.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.

Training advice

Provide adequate information, instruction and training for operators.

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Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sulphuric acid

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

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EXPOSURE SCENARIO 1 (Industrial use)

1. Industrial use (Reagent for analysis)

Sectors of end-use

SU 3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 9 Manufacture of fine chemicals
SU 10 Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

Chemical product category

PC21 Laboratory chemicals

Process categories

PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC15 Use as laboratory reagent

Environmental Release Categories

ERC1 Manufacture of substances
ERC2 Formulation of preparations
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC1

Amount used

Daily amount per site 1500 t

Environment factors not influenced by risk management

Dilution Factor (River) 10

Other given operational conditions affecting environmental exposure

Continuous use/release
Number of emission days per year 365

Technical conditions and measures / Organizational measures

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Air Use of air emission abatement equipments.
Water Solutions with low pH-value must be neutralized before discharge.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Sludge Treatment Sewage sludge should not be applied to natural soils.

2.2 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Annual amount per site 300000 t

Environment factors not influenced by risk management

Dilution Factor (River) 10

Other given operational conditions affecting environmental exposure

Continuous use/release
Number of emission days per year 365

Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.
Water Solutions with low pH-value must be neutralized before discharge.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Sludge Treatment Sewage sludge should not be applied to natural soils.

2.3 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Annual amount per site 300000 t

Environment factors not influenced by risk management

Dilution Factor (River) 10

Other given operational conditions affecting environmental exposure

Continuous use/release
Number of emission days per year 365

Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.

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Water	Solutions with low pH-value must be neutralized before discharge.
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Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Sludge Treatment	Sewage sludge should not be applied to natural soils.

2.4 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Annual amount per site	100000 t
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Environment factors not influenced by risk management

Dilution Factor (River)	10
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Other given operational conditions affecting environmental exposure

Continuous use/release	
Number of emission days per year	365

Technical conditions and measures / Organizational measures

Air	Use of air emission abatement equipments.
Water	Solutions with low pH-value must be neutralized before discharge.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Sludge Treatment	Sewage sludge should not be applied to natural soils.

2.5 Contributing scenario controlling worker exposure for: PROC1

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Low volatile liquid
Process Temperature	< 130 °C

Frequency and duration of use

Frequency of use	8 hours/day
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Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
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Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

2.6 Contributing scenario controlling worker exposure for: PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use) Low volatile liquid
Process Temperature < 130 °C

Frequency and duration of use

Frequency of use 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC1		All compartments	< 1	EUSES
2.2	ERC2		All compartments	< 1	EUSES
2.3	ERC6a		All compartments	< 1	EUSES
2.4	ERC6b		All compartments	< 1	EUSES

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.5	PROC1	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA

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2.6	PROC2	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC3	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC4	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC5	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC8a	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC8b	acute, inhalative, local	0,20	ECETOC TRA
		longterm, inhalative, local	0,41	ECETOC TRA
2.6	PROC9	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC10	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA
2.6	PROC15	acute, inhalative, local	0,41	ECETOC TRA
		longterm, inhalative, local	0,82	ECETOC TRA

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

For (other) local effects risk management measures are based on qualitative risk characterisation.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool SciDeEx® at www.merckmillipore.com/scideex.

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EXPOSURE SCENARIO 2 (Professional use)

1. Professional use (Reagent for analysis)

Sectors of end-use

SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical product category

PC 21 Laboratory chemicals

Process categories

PROC 15 Use as laboratory reagent

Environmental Release Categories

ERC 2 Formulation of preparations

ERC 6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC 6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Annual amount per site 300000 t

Environment factors not influenced by risk management

Dilution Factor (River) 10

Other given operational conditions affecting environmental exposure

Continuous use/release

Number of emission days per year 365

Technical conditions and measures / Organizational measures

Air Use of air emission abatement equipments.

Water Solutions with low pH-value must be neutralized before discharge.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant

Flow rate of sewage treatment plant effluent 2.000 m³/d

Sludge Treatment Sewage sludge should not be applied to natural soils.

2.2 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Annual amount per site 300000 t

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant®
	N

Environment factors not influenced by risk management

Dilution Factor (River)	10
-------------------------	----

Other given operational conditions affecting environmental exposure

Continuous use/release	
Number of emission days per year	365

Technical conditions and measures / Organizational measures

Air	Use of air emission abatement equipments.
Water	Solutions with low pH-value must be neutralized before discharge.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Sludge Treatment	Sewage sludge should not be applied to natural soils.

2.3 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Annual amount per site	100000 t
------------------------	----------

Environment factors not influenced by risk management

Dilution Factor (River)	10
-------------------------	----

Other given operational conditions affecting environmental exposure

Continuous use/release	
Number of emission days per year	365

Technical conditions and measures / Organizational measures

Air	Use of air emission abatement equipments.
Water	Solutions with low pH-value must be neutralized before discharge.

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent	2.000 m3/d
Sludge Treatment	Sewage sludge should not be applied to natural soils.

2.4 Contributing scenario controlling worker exposure for: PROC15

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
---	--

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant®
N

Physical Form (at time of use) Low volatile liquid
Process Temperature < 130 °C

Frequency and duration of use

Frequency of use < 4 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid carrying out operation for more than 4 hours.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

3. Exposure estimation and reference to its source

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		All compartments	< 1	EUSES
2.2	ERC6a		All compartments	< 1	EUSES
2.3	ERC6b		All compartments	< 1	EUSES

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC15	acute, inhalative, local	0,82	ECETOC TRA
		longterm, inhalative, local	0,98	ECETOC TRA

For (other) local effects risk management measures are based on qualitative risk characterisation.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool SciDeEx® at www.merckmillipore.com/scideex.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.04.2017

Version 12.1

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®

N-1K

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Reagent for analysis
For additional information on uses please refer to the Merck Chemicals
portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number Please contact the regional company representation in your country.

SECTION 2. Hazards identification**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Oxidizing solid, Category 3, H272

Acute toxicity, Category 4, Oral, H302

Skin irritation, Category 2, H315

Skin sensitisation, Category 1, H317

Eye irritation, Category 2, H319

Respiratory sensitisation, Category 1, H334

Specific target organ toxicity - single exposure, Category 3, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-1K

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

Precautionary statements

Prevention

P280 Wear protective gloves.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H317 May cause an allergic skin reaction.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

P280 Wear protective gloves.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Contains: Potassium persulfate

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Mixture of inorganic compounds

3.1 Substance

Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No. Registration number Classification

Potassium persulfate ($\geq 50\%$ - $\leq 100\%$)

7727-21-1 *)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

Oxidizing solid, Category 3, H272
Acute toxicity, Category 4, H302
Skin irritation, Category 2, H315
Eye irritation, Category 2, H319
Respiratory sensitisation, Category 1, H334
Skin sensitisation, Category 1, H317
Specific target organ toxicity - single exposure, Category 3, H335

Potassium carbonate ($\geq 25\%$ - $< 50\%$)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

584-08-7 01-2119532646-36-

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Skin irritation, Category 2, H315
Eye irritation, Category 2, H319
Specific target organ toxicity - single exposure, Category 3, H335

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

For the full text of the R-phrases mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

irritant effects, Allergic reactions, Cough, Shortness of breath

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-1K

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

Water, Foam

5.2 Special hazards arising from the substance or mixture

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

Sulphur oxides

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Keep workplace dry. Do not allow product to come into contact with water.

Work under hood. Do not inhale substance/mixture.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Away from combustible materials and sources of ignition and heat.

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

Potassium carbonate (584-08-7)

Worker DNEL, longterm	Local effects	inhalation	10 mg/m ³
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8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

full contact:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

splash contact:
Glove material: Nitrile rubber
Glove thickness: 0,11 mm
Break through time: > 480 min

Glove material: Nitrile rubber
Glove thickness: 0,11 mm
Break through time: > 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

This recommendation applies only to the product stated in the safety data sheet(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment
protective clothing

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	solid
Colour	white
Odour	odourless
Odour Threshold	Not applicable
pH	No information available.
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-1K

Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	No information available.
Relative density	No information available.
Water solubility	at 25 °C soluble
Partition coefficient: n- octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	> 100 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	The substance or mixture is classified as oxidizing with the category 3. May intensify fire; oxidizer.

9.2 Other data

Bulk density	750 - 800 kg/m ³
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SECTION 10. Stability and reactivity

10.1 Reactivity

Oxidizing
strong oxidising agent

10.2 Chemical stability

sensitive to moisture

10.3 Possibility of hazardous reactions

Violent reactions possible with:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-1K

Water, bases, strong alkalis, Metals, Heavy metals, silver compounds, Reducing agents, combustible substances, acids, hydrides

10.4 Conditions to avoid

Strong heating (decomposition).
Exposure to moisture

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

Acute toxicity estimate: 1.211 mg/kg

Calculation method

absorption

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages: damage of respiratory tract, Inhalation may lead to the formation of oedemas in the respiratory tract.

Acute dermal toxicity

This information is not available.

Skin irritation

Mixture causes skin irritation.

Eye irritation

Mixture causes serious eye irritation.

Sensitisation

Mixture may cause allergy or asthma symptoms or breathing difficulties if inhaled.

Mixture may cause an allergic skin reaction.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

Specific target organ toxicity - single exposure

Mixture may cause respiratory irritation.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

After absorption:

We have no description of any toxic symptoms.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

Potassium persulfate

Acute oral toxicity

LD50 Rat: 802 mg/kg (RTECS)

Sensitisation

Human experience

Result: positive

(Lit.)

Potassium carbonate

Acute oral toxicity

LD50 Rat: > 2.000 mg/kg

OECD Test Guideline 401

Skin irritation

Rabbit

Result: Irritations

(IUCLID)

Eye irritation

Rabbit

Result: Eye irritation

(IUCLID)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

Components

Potassium persulfate

Toxicity to fish

LC50 *Poecilia reticulata* (guppy): 100 mg/l; 96 h (Hommel)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 357 mg/l; 24 h (Hommel)

Toxicity to bacteria

EC50 *Pseudomonas putida*: 36 mg/l(Hommel)

Potassium carbonate

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Partition coefficient: n-octanol/water

Not applicable

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant®
	N-1K

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-P

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-1K

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard	96/82/EC
Legislation	Oxidizing 3 Quantity 1: 50 t Quantity 2: 200 t

SEVESO III
OXIDIZING LIQUIDS AND SOLIDS
P8
Quantity 1: 50 t
Quantity 2: 200 t

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
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Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
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Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
---	---------------

Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w).
--	--

National legislation

Storage class	5.1 B
The data applies to the entire pack.	

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-1K

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.

Full text of R-phrases referred to under sections 2 and 3

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-1K

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

Precautionary statements

Prevention

P280 Wear protective gloves.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

Contains: Potassium persulfate

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.04.2017

Version 12.1

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®

N-2K

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Reagent for analysis
For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number Please contact the regional company representation in your country.

SECTION 2. Hazards identification**2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**

Corrosive to metals, Category 1, H290

Skin corrosion, Category 1A, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)***Hazard pictograms*

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-2K

Signal word

Danger

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H314 Causes severe skin burns and eye damage.

Precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sodium hydroxide

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-2K

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution

3.1 Substance

Not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No. Registration number Classification

sodium hydroxide ($\geq 25\%$ - $< 50\%$)

PBT/vPvB: Not applicable for inorganic substances

1310-73-2 01-2119457892-27-

XXXX

Corrosive to metals, Category 1, H290

Skin corrosion, Category 1A, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

For the full text of the R-phrases mentioned in this Section, see Section 16.

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Cough, Shortness of breath, collapse, death

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-2K

Risk of blindness!

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapours/mists with a water spray jet.

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapours, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralising material (e.g. Chemisorb® OH⁻, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-2K

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers

No aluminium, tin, or zinc containers.

Storage conditions

Tightly closed. Away from combustible materials and sources of ignition and heat.

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

sodium hydroxide (1310-73-2)

Worker DNEL, Local effects longterm	inhalation	1 mg/m ³
Consumer DNEL, Local effects longterm	inhalation	1 mg/m ³

Predicted No Effect Concentration (PNEC)

sodium hydroxide (1310-73-2)

PNEC no data available

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

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Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet(>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable

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pH	14 at 20 °C
Melting point	9 °C
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	ca.8 hPa at 20 °C
Relative vapour density	No information available.
Density	1,35 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	19 mPa.s at 20 °C
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	Not applicable
Corrosion	May be corrosive to metals.

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SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Metals, Light metals

Possible formation of:

Hydrogen

Violent reactions possible with:

ammonium compounds, Cyanides, organic nitro compounds, organic combustible substances, phenols, powdered alkaline earth metals, acids, Nitriles, magnesium

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Aluminium, various plastics, brass, Metals, metal alloys, Zinc, Tin, Light metals, glass, quartzes/silicate ceramics, animal/vegetable tissues

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

This information is not available.

Skin irritation

Necrosis

Mixture causes severe burns.

Eye irritation

Mixture causes serious eye damage. Risk of blindness! Necrosis

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Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Systemic effects:

collapse, death

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

sodium hydroxide

Skin irritation

Rabbit

Result: Causes burns.
(External MSDS)

Eye irritation

Rabbit

Result: Irreversible effects on the eye
(ECHA)

Sensitisation

Patch test: human

Result: negative
(ECHA)

Germ cell mutagenicity

Genotoxicity in vitro

Mutagenicity (mammal cell test): micronucleus.

Result: negative
(Lit.)

Ames test

Result: negative
(IUCLID)

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Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
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SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB: Not applicable for inorganic substances

12.6 Other adverse effects

Additional ecological information

Harmful effect due to pH shift. Death of fish possible. Does not cause biological oxygen deficit.

Neutralisation possible in waste water treatment plants.

Discharge into the environment must be avoided.

Components

sodium hydroxide

Toxicity to fish

LC50 *Gambusia affinis* (Mosquito fish): 125 mg/l; 96 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Ceriodaphnia* (water flea): 40,4 mg/l; 48 h (ECHA)

Toxicity to bacteria

EC50 *Photobacterium phosphoreum*: 22 mg/l; 15 min (External MSDS)

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

PBT/vPvB: Not applicable for inorganic substances

SAFETY DATA SHEET

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Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant®
	N-2K

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-P

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-2K

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard	96/82/EC
Legislation	Directive 96/82/EC does not apply

SEVESO III
Not applicable

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.
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Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	not regulated
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Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC	not regulated
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Substances of very high concern (SVHC)	This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).
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National legislation

Storage class	5.1 B
The data applies to the entire pack.	

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Full text of R-phrases referred to under sections 2 and 3

SAFETY DATA SHEET

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Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-2K

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: sodium hydroxide

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

SAFETY DATA SHEET

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The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-2K

EXPOSURE SCENARIO 1 (Industrial use)

1. Industrial use (Chemical production)

Sectors of end-use

SU 3 Industrial uses: Uses of substances as such or in preparations at industrial sites
SU 10 Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

Chemical product category

PC19 Intermediate

Process categories

PROC1 Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC15 Use as laboratory reagent

Environmental Release Categories

ERC1 Manufacture of substances
ERC2 Formulation of preparations
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a, ERC6b

Technical conditions and measures / Organizational measures

Water	Solutions with high pH-value must be neutralized before discharge.
Remarks	Do not allow uncontrolled discharge of product into the environment.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, PROC15

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-2K

Product characteristics

Concentration of the Substance in Mixture/Article	Covers the percentage of the substance in the product up to 100 %.
Physical Form (at time of use)	Aqueous solution

Frequency and duration of use

Frequency of use	600 minutes/day
Frequency of use	200 days/year

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
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Technical conditions and measures

Good work practice required. Ensure adequate ventilation, especially in confined areas.

Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves (tested to EN374), coverall and eye protection. Breathing apparatus only if aerosol or dust is formed.

3. Exposure estimation and reference to its source

For (other) local effects risk management measures are based on qualitative risk characterisation.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 11.04.2017

Version 12.1

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant®
	N-3K
REACH Registration Number	A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	99-10-5

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

Identified uses	Reagent for analysis For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).
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1.3 Details of the supplier of the safety data sheet

Company	Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0
Responsible Department	LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number	Please contact the regional company representation in your country.
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SECTION 2. Hazards identification**2.1 Classification of the substance or mixture**

This substance is not classified as dangerous according to European Union legislation.

2.2 Label elements**Labelling (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.3 Other hazards

None known.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-3K

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	C ₇ H ₆ O ₄ (Hill)
EC-No.	202-730-7
Molar mass	154,12 g/mol

Remarks	No disclosure requirement according to Regulation (EC) No. 1907/2006.
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3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

After skin contact: wash off with plenty of water. Remove contaminated clothing.

After eye contact: rinse out with plenty of water.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

We have no description of any toxic symptoms.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water, Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

SAFETY DATA SHEET

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Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-3K

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment for firefighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions

Do not empty into drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Change contaminated clothing. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Away from combustible materials and sources of ignition and heat.

Recommended storage temperature see product label.

The data applies to the entire pack.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

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Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-3K

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet (>,<) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 1 (acc. to DIN 3181) for solid particles of inert substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not empty into drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-3K

Form	solid
Colour	beige
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 2,3 at 10 g/l 25 °C
Melting point	234 - 238 °C
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	No information available.
Relative density	No information available.
Water solubility	84 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: 0,86 (experimental) (External MSDS) Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	> 236 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-3K

Oxidizing properties	none
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9.2 Other data

Ignition temperature	> 500 °C Method: DIN 51794
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Bulk density	ca.700 kg/m ³
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SECTION 10. Stability and reactivity

10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Violent reactions possible with:

Fluorine, Oxygen, Strong oxidizing agents

10.4 Conditions to avoid

Temperatures above melting point.

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 4.160 mg/kg (External MSDS)

Acute inhalation toxicity

This information is not available.

Acute dermal toxicity

This information is not available.

Skin irritation

Rabbit

Result: No irritation

(External MSDS)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-3K

Eye irritation

Rabbit

Result: No eye irritation
(External MSDS)

Sensitisation

This information is not available.

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Result: negative
(External MSDS)

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC0 Leuciscus idus (Golden orfe): 500 mg/l; 48 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates

Immobilization EC50 Daphnia magna (Water flea): 616 mg/l; 48 h (ECOTOX Database)

Toxicity to bacteria

EC0 Pseudomonas fluorescens: 100 mg/l (External MSDS)

12.2 Persistence and degradability

Biodegradability

> 80 %

OECD Test Guideline 301D

Readily biodegradable

12.3 Bioaccumulative potential

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
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Partition coefficient: n-octanol/water

log Pow: 0,86

(experimental)

(External MSDS) Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 3316
14.2 Proper shipping name	CHEMICAL KIT
14.3 Class	9
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 114537
Product name Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N
Spectroquant®
N-3K

14.1 UN number UN 3316
14.2 Proper shipping name CHEMICAL KIT
14.3 Class 9
14.4 Packing group II
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-A S-P
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not relevant

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard 96/82/EC
Legislation Directive 96/82/EC does not apply
SEVESO III
Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation

Storage class 5.1 B
The data applies to the entire pack.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	114537
Product name	Nitrogen (total) Cell Test Method: photometric 0.5 - 15.0 mg/l N Spectroquant® N-3K

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

Training advice

Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.