SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Revision Date 23.05.2018 Version 8.0

aSECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Catalogue No.	114694
Product name	Oxygen Cell Test Method: photometric 0.5 - 12.0 mg/l O_2 Spectroquant®
	O_2-1K
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)

Acute toxicity, Category 4, Oral, H302

Chronic aquatic toxicity, Category 3, H412

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

Signal word

Warning

Hazard statements

H302 Harmful if swallowed.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 Avoid release to the environment.

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word

Warning

Hazard statements

H412 Harmful to aquatic life with long lasting effects.

Contains: manganese(II) chloride

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution of inorganic and organic compounds.

3.1 Substance

Not applicable

3.2 Mixture

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

Chemical name (Concentration)

CAS-No. Registration number Classification

manganese(II) chloride *(>= 10 % - < 20 %)*

7773-01-5 *)

Acute toxicity, Category 3, H301

Chronic aquatic toxicity, Category 2, H411

Sulphamic acid *(>= 3 % - < 5 %)*

5329-14-6 *)

Skin irritation, Category 2, H315

Eye irritation, Category 2, H319

Chronic aquatic toxicity, Category 3, H412

*) 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.

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

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

After eye contact: rinse out with plenty of water. 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

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, Hydrogen chloride gas, nitrogen 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: 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 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. Chemizorb® 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. Preventive skin protection recommended. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed.

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

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).
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 B-(P2)
The entrepeneur 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	pink
Odour	odourless
Odour Threshold	Not applicable
pH	< 1 at 25 °C (undiluted)
Melting point	No information available.
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	1,16 g/cm3 at 20 °C
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	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

none

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 explosion with:

Alkali metals, Zinc

Violent reactions possible with:

Acids

Violent reactions possible with:

The generally known reaction partners of water.

10.4 Conditions to avoid

no information available

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

Acute toxicity estimate: 1.704 mg/kg
Calculation method

Acute inhalation toxicity
This information is not available.

Acute dermal toxicity
This information is not available.

Skin irritation
Possible damages: slight irritation

Eye irritation
Possible damages: slight irritation

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
After absorption:
We have no description of any symptoms of toxicity.
Manganese compounds are generally only very slightly absorbable via the gastrointestinal tract.
Handle in accordance with good industrial hygiene and safety practice.
Other dangerous properties can not be excluded.

Components

manganese(II) chloride

Acute oral toxicity
LD50 Rat: 250 mg/kg (RTECS)

Skin irritation
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: Eye irritation
OECD Test Guideline 405

Sensitisation
Local lymph node assay (LLNA) Mouse
Result: negative
Method: OECD Test Guideline 429

Germ cell mutagenicity
Genotoxicity in vivo
Chromosome aberration test
Mouse
female
Oral
Result: negative
Method: OECD Test Guideline 474

Genotoxicity in vitro
Mutagenicity (mammal cell test): chromosome aberration.
Human lymphocytes
Result: negative
Method: OECD Test Guideline 473

Ames test
Escherichia coli/Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test
Mouse lymphoma test
Result: negative
Method: OECD Test Guideline 476

Sulphamic acid

Skin irritation
Rabbit
Result: Irritations
OECD Test Guideline 404

Eye irritation
Rabbit
Result: Severe irritations
OECD Test Guideline 405

Germ cell mutagenicity

Genotoxicity in vivo
Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Mouse
oral
Result: negative
Method: OECD Test Guideline 474

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
Method: OECD Test Guideline 471

Mutagenicity (mammal cell test):
Result: negative
Method: OECD Test Guideline 476

Mutagenicity (mammal cell test): micronucleus.
Human lymphocytes
Result: negative
Method: OECD Test Guideline 487

SECTION 12. Ecological information

Mixture

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
Discharge into the environment must be avoided.

Components

manganese(II) chloride

Toxicity to fish
LC50 Oryzias latipes (Orange-red killifish): > 1.000 mg/l; 48 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 4,7 mg/l; 48 h (ECOTOX Database)

Biodegradability

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

Partition coefficient: n-octanol/water
Not applicable for inorganic substances

Sulphamic acid

Toxicity to fish
LC50 Pimephales promelas (fathead minnow): 70,3 mg/l; 96 h
OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
semi-static test EC50 Daphnia magna (Water flea): 71,6 mg/l; 48 h
OECD Test Guideline 202

Toxicity to bacteria
EC10 Pseudomonas putida: >= 1.000 mg/l; 16 h (IUCLID)

EC50 activated sludge: > 200 mg/l; 3 h
OECD Test Guideline 209

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!

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. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where 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	8B

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.

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms

Signal word

Warning

Hazard statements

H302 Harmful if swallowed.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 Avoid release to the environment.

Contains: manganese(II) chloride

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.

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

1.1 Product identifier

Catalogue No.	114694
Product name	Oxygen Cell Test Method: photometric 0.5 - 12.0 mg/l O_2 Spectroquant®
	O_2-2K
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

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

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous alkaline solution.

3.1 Substance

Not applicable

3.2 Mixture

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
Ethylenedinitrilotetraacetic acid,Tetrasodiumsalt *(>= 10 % - < 20 %)*		
64-02-8	*)	Acute toxicity, Category 4, H302 Serious eye damage, Category 1, H318
sodium hydroxide *(>= 10 % - < 20 %)* *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

*) 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.

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
collapse, death
Risk of blindness!
Irritation and corrosion, Cough, Shortness of breath
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: 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 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. Chemizorb® 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.

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 metal containers.

Storage conditions
Tightly closed.

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)

sodium hydroxide (1310-73-2)

Worker DNEL, longterm	Local effects	inhalation	1 mg/m³
Consumer DNEL, longterm	Local effects	inhalation	1 mg/m³

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.

Eye/face protection
Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	natural latex
Glove thickness:	0,6 mm
Break through time:	> 480 min

splash contact:

Glove material:	natural latex
Glove thickness:	0,6 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 706 Lapren® (full contact), KCL 706 Lapren® (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 entrepeneur 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
pH	ca. 14 at 20 °C (undiluted)
Melting point	No information available.
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	ca.1,23 g/cm3 at 20 °C
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	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Corrosion	May be corrosive to metals.

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:

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

10.4 Conditions to avoid
no information available

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

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

Acute toxicity estimate: > 2.000 mg/kg
Calculation method

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
Mixture causes severe burns.
Necrosis

Eye irritation
Mixture causes serious eye damage. Risk of blindness!
Necrosis

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

Ethylenedinitrilotetraacetic acid,Tetrasodiumsalt

Acute oral toxicity
LD50 Rat: 1.780 mg/kg (ECHA)

Skin irritation
Rabbit
Result: No irritation
OECD Test Guideline 404

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)

SECTION 12. Ecological information

Mixture

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
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

Ethylenedinitrilotetraacetic acid,Tetrasodiumsalt

Toxicity to fish
static test LC50 Lepomis macrochirus (Bluegill sunfish): 121 mg/l; 96 h (ECHA) (in soft water)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 625 mg/l; 24 h
DIN 38412

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

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!

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 ≥ 0.1 % (w/w).

National legislation

Storage class	8B

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.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

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.

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.

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

1.1 Product identifier

Catalogue No.	114694
Product name	Oxygen Cell Test Method: photometric 0.5 - 12.0 mg/l O_2 Spectroquant®
	O_2-3K
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)

Eye irritation, Category 2, H319

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

Signal word

Warning

Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

Response

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

Reduced labelling (≤125 ml)

Hazard pictograms

Signal word

Warning

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution of organic compounds.

3.1 Substance

Not applicable

3.2 Mixture

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
Tartaric acid *(>= 25 % - < 50 %)*		

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

87-69-4	01-2119537204-47-xxxx	Eye irritation, Category 2, H319

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

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. Call in ophthalmologist.

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

irritant effects

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

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: 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. Chemizorb® 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
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.

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)

Tartaric acid (87-69-4)

Worker DNEL, longterm	Systemic effects	dermal	2,9 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	inhalation	5,2 mg/m³
Consumer DNEL, longterm	Systemic effects	dermal	1,5 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	1,3 mg/m³

Consumer DNEL, longterm	Systemic effects	oral	8,1 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

Tartaric acid (87-69-4)

PNEC Fresh water	0,3125 mg/l
PNEC Marine water	0,3125 mg/l
PNEC Aquatic intermittent release	0,514 mg/l
PNEC Sewage treatment plant	10 mg/l
PNEC Sediment	1,141 mg/kg
PNEC Marine sediment	1,141 mg/kg
PNEC Soil	0,0449 mg/kg

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:	natural latex
Glove thickness:	0,6 mm
Break through time:	> 480 min

splash contact:

Glove material:	natural latex
Glove thickness:	0,6 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 706 Lapren® (full contact), KCL 706 Lapren® (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 1 (acc. to DIN 3181) for solid particles of inert substances
The entrepeneur 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	ca. 1 at 20 °C
Melting point	No information available.
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	ca.1,184 g/cm3 at 20 °C
Relative density	No information available.
Water solubility	No information available.
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

none

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

Violent reactions possible with:

The generally known reaction partners of water.

10.4 Conditions to avoid

no information available

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

Mixture

Acute oral toxicity

This information is not available.

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity
This information is not available.

Skin irritation
This information is not available.

Eye irritation
Mixture causes serious eye irritation.

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

Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

Components

Tartaric acid

Acute dermal toxicity
LD50 Rat: > 2.000 mg/kg
OECD Test Guideline 402

Skin irritation
Rabbit
Result: No skin irritation
OECD Test Guideline 404

Sensitisation
Local lymph node assay (LLNA) Mouse
Result: negative
Method: OECD Test Guideline 429

Germ cell mutagenicity

Genotoxicity in vivo
dominant lethal test
Rat
male and female
Oral
Result: negative
Method: OECD Test Guideline 478

Chromosome aberration test
Rat
male
Oral
Result: negative
Method: OECD Test Guideline 475

Genotoxicity in vitro
Ames test
Result: negative
(Lit.)

SECTION 12. Ecological information

Mixture

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
Discharge into the environment must be avoided.

Components

Tartaric acid

Toxicity to fish
static test LC50 Danio rerio (zebra fish): > 100 mg/l; 96 h
Analytical monitoring: yes
OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia (water flea): 135 mg/l; 24 h (Lit.)

Toxicity to bacteria
static test EC50 activated sludge: > 1.000 mg/l; 3 h
OECD Test Guideline 209

Theoretical oxygen demand (ThOD)
533 mg/g
(Lit.)

Ratio BOD/ThBOD
BOD5 56 %
(Lit.)

Ratio COD/ThBOD
98 %
(Lit.)

Partition coefficient: n-octanol/water
log Pow: -1,43
(calculated)
(Lit.) Bioaccumulation is not expected.

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

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!

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 ≥ 0.1 % (w/w).

National legislation

Storage class	8B

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.

H319 Causes serious eye irritation.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms

Signal word

Warning

Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

Response

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

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.

Catalogue No.	114694
Product name	Oxygen Cell Test Method: photometric 0.5 - 12.0 mg/l O_2 Spectroquant® O_2-3K

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.