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

Revision Date 18.10.2017 Version 9.0

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

1.1 Product identifier

Catalogue No.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant®
	CN-1
REACH Registration Number	01-2119457026-42-XXXX
CAS-No.	77-92-9

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).

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

Contains: citric acid

CAS-No. 77-92-9

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	$(HOOCCH_2)_2C(OH)COOH$	$C_6H_8O_7$ (Hill)
EC-No.	201-069-1	
Molar mass	192,12 g/mol	

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
citric acid *(<= 100 %)*		
77-92-9	01-2119457026-42-XXXX	Eye irritation, Category 2, H319

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

3.2 Mixture

Not applicable

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. 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, Pain, Bloody vomiting

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, Foam, Carbon dioxide (CO2), 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

Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.
Risk of dust explosion.

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. 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 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
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)
See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Predicted No Effect Concentration (PNEC)

PNEC Fresh water	0,44 mg/l
PNEC Marine water	0,044 mg/l
PNEC Sewage treatment plant	1000 mg/l
PNEC Fresh water sediment	34,6 mg/kg
PNEC Marine sediment	3,46 mg/kg
PNEC Soil	33,1 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:	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 dusts 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	solid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 1,7 at 100 g/l 20 °C
Melting point	ca. 153 °C Method: OECD Test Guideline 102 (decomposition)
Boiling point/boiling range	200 °C at 1.013 hPa (decomposition)
Boiling point/boiling range	(decomposition)
Flash point	Not applicable
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	< 0,1 hPa at 20 °C
Relative vapour density	No information available.
Density	1,665 g/cm3 at 18 °C Method: OECD Test Guideline 109
Relative density	No information available.
Water solubility	1.330 g/l at 20 °C
Partition coefficient: n-octanol/water	log Pow: -1,72 (20 °C) OECD Test Guideline 117 Bioaccumulation is not expected.
Auto-ignition temperature	No information available.
Decomposition temperature	175 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Bulk density	ca.560 kg/m3

SECTION 10. Stability and reactivity

10.1 Reactivity
Risk of dust explosion.

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:

Metals, Oxidizing agents, Bases, Reducing agents

10.4 Conditions to avoid
Temperatures above melting point.

10.5 Incompatible materials
Metals

10.6 Hazardous decomposition products
no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity
LD50 Rat: 11.700 mg/kg
OECD Test Guideline 401

Symptoms: In high doses:, Irritation of mucous membranes, Pain, Bloody vomiting

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

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

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

Eye irritation
Rabbit
Result: Severe irritations
OECD Test Guideline 405
Causes serious eye irritation.

Sensitisation
This information is not available.

Germ cell mutagenicity

Genotoxicity in vivo
Chromosome aberration test
Rat
male
Oral
Bone marrow
Result: negative
Method: OECD Test Guideline 475

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

Carcinogenicity
This information is not available.

Reproductive toxicity
No impairment of reproductive performance in animal experiments. (Lit.)

Teratogenicity
Did not show teratogenic effects in animal experiments. (Lit.)

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
Substance which occurs in the human body under physiological conditions.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity
Toxicity to fish
LC50 Leuciscus idus (Golden orfe): 440 - 760 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC5 E.sulcatum: 485 mg/l; 72 h (Lit.)

EC50 Daphnia magna (Water flea): ca. 120 mg/l; 72 h (IUCLID)

Toxicity to algae
IC5 Scenedesmus quadricauda (Green algae): 640 mg/l; 7 d (maximum permissible toxic concentration) (Lit.)

IC5 M.aeruginosa: 80 mg/l; 8 d (maximum permissible toxic concentration) (Lit.)

Toxicity to bacteria
EC5 Pseudomonas putida: > 10.000 mg/l; 16 h (maximum permissible toxic concentration) (Lit.)

12.2 Persistence and degradability

Biodegradability
98 %; 2 d
OECD Test Guideline 302B
Readily eliminated from water

Biochemical Oxygen Demand (BOD)
526 mg/g (5 d)
(IUCLID)

Chemical Oxygen Demand (COD)
728 mg/g
(IUCLID)

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: -1,72 (20 °C)
OECD Test Guideline 117
Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

Additional ecological information
Harmful effect due to pH shift.
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)

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.

Contains: citric 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.

EXPOSURE SCENARIO 1 (Industrial use)

1. Industrial use (Reagent for development and research, Chemical production)

Sectors of end-use

SU 3	Industrial uses: Uses of substances as such or in preparations at industrial sites
SU9	Manufacture of fine chemicals
SU 10	Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

Chemical product category

PC19	Intermediate
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
PROC14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation
PROC15	Use as laboratory reagent

Environmental Release Categories

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 worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC14, 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)	Solid, high dustiness

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)
Remarks	Handle substance within a predominantly closed system provided with extract ventilation., Handle in a fume cupboard or under extract ventilation.

Technical conditions and measures

Dust must be extracted directly at the point of origin.

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. Tightly fitting safety goggles In case of inadequate ventilation wear respiratory protection.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC1	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC2	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC3	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC4	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC5	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC8a	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC8b	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC9	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC10	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC14	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.
2.1	PROC15	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.

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).

Catalogue No.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant®
	CN-1

EXPOSURE SCENARIO 2 (Professional use)

1. Professional use (Reagent for development and research, Chemical production)

Sectors of end-use

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

Chemical product category

PC21 Laboratory chemicals

Process categories

PROC15 Use as laboratory reagent

Environmental Release Categories

ERC2 Formulation of preparations
ERC8a Wide dispersive indoor use of processing aids in open systems
ERC8d Wide dispersive outdoor use of processing aids in open systems

2. Contributing scenarios: Operational conditions and risk management measures

2.1 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 %.
Physical Form (at time of use)	Solid, high dustiness

Frequency and duration of use

Frequency of use	8 hours/day
Frequency of use	5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)
Remarks	Handle substance within a predominantly closed system provided with extract ventilation., Handle in a fume cupboard or under extract ventilation.

Technical conditions and measures

Dust must be extracted directly at the point of origin.

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. Tightly fitting safety goggles In case of inadequate ventilation wear respiratory protection.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice	Wear suitable coveralls to prevent exposure to the skin.

3. Exposure estimation and reference to its source

Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC15	longterm, combined, systemic	< 1	Qualitative assessment used to conclude safe use.

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).

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

1.1 Product identifier

Catalogue No.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant®
	CN-2
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 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 *(>= 5 % - < 10 %)*		
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.

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
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. 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 aluminium, tin, or zinc containers.

Storage conditions
Tightly closed.

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

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.

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).
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. 13,8 at 20 °C
Melting point	No information available.

Boiling point	No information available.
Flash point	Not applicable
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	1,09 g/cm3 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	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:

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

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)

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

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.
H314	Causes severe skin burns and eye damage.

Training advice

Provide adequate information, instruction and training for operators.

Catalogue No.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant® CN-2

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.

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 tabletting, 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

Catalogue No.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant®
	CN-2

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)

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).

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

1.1 Product identifier

Catalogue No.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant®
	CN-3
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)

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 statements

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 Avoid release to the environment.

Reduced labelling (≤125 ml)

Hazard statements

H412 Harmful to aquatic life with long lasting effects.

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Mixture 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
troclosene sodium, dihydrate *(>= 0,25 % - < 1 %)*		
51580-86-0	01-2119489371-33-XXXX	Acute toxicity, Category 4, H302
		Eye irritation, Category 2, H319
		Specific target organ toxicity - single exposure, Category 3, H335
		Acute aquatic toxicity, Category 1, H400
		Chronic aquatic toxicity, Category 1, H410

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: 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.
Fire may cause evolution of:
Hydrogen chloride gas, 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. 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 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.

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).

Respiratory protection
required when dusts 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 let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	solid
Colour	white
Odour	of chlorine
Odour Threshold	No information available.
pH	No information available.
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
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 20 °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/exothermic reaction with:

Alkali metals

Exothermic reaction with:

Lithium

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:, Irritation of mucous membranes

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 uptake of large quantities:
cardiovascular disorders, Nausea, Vomiting
However, when the product is handled appropriately, hazardous effects are unlikely to occur.
Handle in accordance with good industrial hygiene and safety practice.

Components

troclosene sodium, dihydrate

Acute oral toxicity
LD50 Rat: 550 - 1.600 mg/kg (External MSDS)

Acute dermal toxicity
LD50 Rabbit: > 5.000 mg/kg (External MSDS)

Eye irritation
Rabbit
Result: Corrosive
US-EPA

Sensitisation
Sensitisation test (Magnusson and Kligman): Guinea pig
Result: negative
Method: OECD Test Guideline 406

Germ cell mutagenicity
Genotoxicity in vivo
Rat
male
Oral
Result: negative
Method: OECD Test Guideline 475

Genotoxicity in vitro
Ames test
Escherichia coli
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.

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
troclosene sodium, dihydrate

Toxicity to fish
LC50 Oncorhynchus mykiss (rainbow trout): 0,25 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 0,28 mg/l; 48 h (ECOTOX Database)

Toxicity to algae
EC50 algae: > 5.000 mg/l; 96 h
OECD Test Guideline 201

Toxicity to bacteria
NOEC activated sludge: 2.700 mg/l; 3 h
OECD Test Guideline 209

Toxicity to fish (Chronic toxicity)
NOEC: 756 mg/l; 28 d
(ECHA)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
Daphnia magna (Water flea): 2.600 mg/l; 21 d

OECD Test Guideline 211

Biodegradability
4 %; 60 d
OECD Test Guideline 306

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.

H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very 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 statements

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P273 Avoid release to the environment.

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.	109701
Product name	Cyanide Test (free and readily liberated cyanide) Method: photometric 0.002 - 0.500 mg/l CN^- Spectroquant®
	CN-4
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)

Serious eye damage, Category 1, H318

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

H318 Causes serious eye damage.

Precautionary statements

Prevention

P280 Wear eye protection.

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.

P313 Get medical advice/ attention.

Contains: 1,3-Dimethylbarbituric acid

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Mixture 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

1,3-Dimethylbarbituric acid *(>= 25 % - < 50 %)*

769-42-6 *)

Acute toxicity, Category 4, H302

Serious eye damage, Category 1, H318

Ethylenedinitrilotetraacetic acid disodium salt *(>= 1 % - < 10 %)*

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

139-33-3	01-2119486775-20-XXXX	Acute toxicity, Category 4, H332 Specific target organ toxicity - repeated exposure, Category 2, H373

*) 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. Immediately 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

Irritation and corrosion
Risk of serious damage to eyes.

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, Foam, Carbon dioxide (CO2), 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

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.
Fire may cause evolution of:
nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for firefighters
In the event of fire, wear self-contained breathing apparatus.

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 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.

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)

Ethylenedinitrilotetraacetic acid disodium salt (139-33-3)

Worker DNEL, acute	Local effects	inhalation	3 mg/m³
Worker DNEL, longterm	Local effects	inhalation	1,5 mg/m³
Consumer DNEL, acute	Local effects	inhalation	1,2 mg/m³
Consumer DNEL, longterm	Local effects	inhalation	0,6 mg/m³
Consumer DNEL, longterm	Systemic effects	oral	25 mg/kg Body weight

Ethylenedinitrilotetraacetic acid disodium salt (139-33-3)

PNEC Fresh water	2,2 mg/l
PNEC Marine water	0,22 mg/l
PNEC Aquatic intermittent release	1,2 mg/l
PNEC Sewage treatment plant	43 mg/l
PNEC Soil	0,72 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

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).
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 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	solid
Colour	white
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 4 at 10 g/l 25 °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	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	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

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

the constituents may react with:

strong alkalis, Strong oxidizing agents

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
Acute toxicity estimate: > 2.000 mg/kg
Calculation method

Acute inhalation toxicity
Acute toxicity estimate: > 5 mg/l; 4 h ; dust/mist
Calculation method

Symptoms: Possible symptoms:, mucosal irritations

Acute dermal toxicity
This information is not available.

Skin irritation
This information is not available.

Eye irritation
Mixture causes serious eye damage.

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

1,3-Dimethylbarbituric acid

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

Skin irritation
Rabbit
Result: No irritation
(External MSDS)

Eye irritation
Rabbit
Result: Eye irritation
(External MSDS)

Ethylenedinitrilotetraacetic acid disodium salt

Acute oral toxicity
LD50 Rat: 2.800 mg/kg
OECD Test Guideline 401

Acute inhalation toxicity
Acute toxicity estimate: 1,6 mg/l; dust/mist
Expert judgement

Skin irritation
Rabbit
Result: No irritation
OECD Test Guideline 404

Eye irritation
Rabbit
Result: No eye irritation
(ECHA)

Repeated dose toxicity
Rat
male
Inhalation
aerosol
5 d
daily
LOAEL: 0,03 mg/l
OECD Test Guideline 412
Lungs

Rat
male and female
Inhalation
dust/mist
90 d
daily
NOAEL: 0,003 mg/l
OECD Test Guideline 413
larynx

Rat
male
Oral
13 Weeks
daily
NOAEL: >= 500 mg/kg
(ECHA)

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

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
Discharge into the environment must be avoided.

Components
1,3-Dimethylbarbituric acid
No information available.

Ethylenedinitrilotetraacetic acid disodium salt
Toxicity to fish
static test LC100 Oncorhynchus mykiss (rainbow trout): 860 mg/l; 24 h (ECHA)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 Daphnia magna (Water flea): 140 mg/l; 48 h
DIN 38412

Toxicity to bacteria
static test EC50 activated sludge: > 500 mg/l; 0,5 h
OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
semi-static test NOEC Daphnia magna (Water flea): 25 mg/l; 21 d
(ECHA)

Partition coefficient: n-octanol/water
log Pow: -4,3 (25 °C)
(experimental)

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.

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

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.