

Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 17.05.2005
Supersedes edition of 19.03.2004

1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Catalogue No.: 114897
Product name: Chloride Test Method: photometric 2.5 - 250 mg/l 100 Tests
Spectroquant®
Cl-1

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Tel: +49 (0)6151/72-0
Emergency telephone No.: +49 (0)6151/722440 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Aqueous solution.

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Iron(III) nitrate 10421-48-4	233-899-5		O; R8 Xi; R36/38	≥ 1 - < 10 %
Nitric acid 7697-37-2	231-714-2	007-004-00-1	O; R8 C; R35	≥ 1 - < 5 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Irritating to eyes and skin.

4. 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 with the eyelid held wide open. Call in ophthalmologist.
After swallowing: make victim drink plenty of water, call in physician.

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5. Fire-fighting measures

Suitable extinguishing media:
In adaption to materials stored in the immediate neighbourhood.

Special risks:
Non-combustible. Ambient fire may liberate hazardous vapours. The following may develop in event of fire: nitrogen oxides.

Special protective equipment for fire fighting:
Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Other information:
Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:
Do not inhale vapours/aerosols. Avoid substance contact.

Environmental-protection measures:
Do not allow to enter sewerage system.

Procedures for cleaning / absorption:
Take up with liquid-absorbent and neutralizing material (e.g. Chemisorb® H⁺, Art. No. 101595). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed in a well-ventilated place. Accessible only for authorised persons. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

TRGS 900

Name	Nitric acid
Value	2 ml/m ³ 5.2 mg/m ³
Peak limit	=1= Concentration must not exceed limit concentration.

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Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection: required when vapours/aerosols are generated.

Eye protection: required

Hand protection: In full contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: nitrile rubber
Layer thickness: 0.11 mm
Breakthrough time: > 480 Min.

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

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. 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).

Industrial hygiene:

Change contaminated clothing. Apply skin-protective barrier cream. Wash hands after working with substance.

9. Physical and chemical properties

Form:	liquid
Colour:	light yellow
Odour:	weak
pH value	(20 °C) acid
Melting point	not available
Boiling point	not available
Ignition temperature	not available
Flash point	not available
Explosion limits	lower not available upper not available
Density	not available
Solubility in water	(20 °C) soluble

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10. Stability and reactivity

Conditions to be avoided

Heating.

Substances to be avoided

Violent reactions possible with: metals, alkali metals, strong alkalis.

Hazardous decomposition products

in the event of fire: See chapter 5.

11. Toxicological information

Acute toxicity

Quantitative data on the toxicity of this product are not available.

Further toxicological information

Property that must be anticipated on the basis from the components of the preparation:

After inhalation: mucosal irritations.

After skin contact: Irritations.

After eye contact: Irritations. mucosal irritations.

After swallowing: irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Other notes:

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.

Further data

Further hazardous properties cannot be excluded.

The product should be handled with the care usual when dealing with chemicals.

12. Ecological information

Ecotoxic effects:

Quantitative data on the ecological effect of this product are not available.

Biological effects:

Harmful effect due to pH shift.

Further ecologic data:

The following applies to nitrates in general: may contribute to the eutrophication of water supplies.

Hazard for drinking water. Fish: LC₅₀ > 500 mg/l.

The following applies to dissolved iron compounds in general: fish: toxic as from 0.9 mg/l at pH 6.5-7.5; lethal as from 1 mg/l at pH 5.5-6.7; 50 mg/l iron upper limit for fish life.

When iron ions flocculate in an alkaline medium, mechanical damage occurs in aquatic organisms.

No ecological problems are to be expected when the product is handled and used with due care and attention.

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13. Disposal considerations

Product:

Chemicals must be disposed of in compliance with the respective national regulations. Under www.retrologistik.de you will find country- and substance-specific information as well as contact partners.

Packaging:

Merck product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under www.retrologistik.de you will find special information on the respective national conditions as well as contact partners.

14. Transport information

Road & Rail ADR, RID
UN 3316 CHEMIE-TESTSATZ, 9, III

Inland waterway ADN, ADNR not tested

Sea IMDG-Code
UN 3316 CHEMICAL KIT, 9, III
Ems F-A S-P

Air CAO, PAX
UN 3316 CHEMICAL KIT, 9, III

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.
THESE TRANSPORT DATA APPLY TO THE ENTIRE PACK !

15. Regulatory information

Labelling according to EC Directives

Symbol:	Xi	Irritant
R-phrases:	36/38	Irritating to eyes and skin.
S-phrases:	26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

German regulations

Water pollution class 1 (slightly polluting substance) VwVwS Anh. 4

Storage class VCI 8 B

Data sheet of the Chemical Professional Association M004 Irritant substances/corrosive substances

M053 General industrial safety measures for dangerous substances.

M014 Nitric acid/ nitric oxides

The employment restrictions for young workers in accordance with section 22 of the Youth Employment Protection Law (JArbSchG) are to be observed.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

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Product name: Chloride Test Method: photometric 2.5 - 250 mg/l 100 Tests Spectroquant®
CI-1

16. Other information

Text of any R phrases referred to under heading 2:

8
35
36/38 Irritating to eyes and skin.

Reason for alteration

General update.

Contact for information:

HSSE-C/CI * Tel: +49 (0)6151/722775 * Fax: +49 (0)6151/726433 * e-mail:prodsafe@merck.de

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

Safety Data Sheet

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1. Identification of the substance/preparation and of the company/undertaking

Identification of the product

Catalogue No.: 114897
Product name: Chloride Test Method: photometric 2.5 - 250 mg/l 100 Tests
Spectroquant®
Cl-2

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Tel: +49 (0)6151/72-0
Emergency telephone No.: +49 (0)6151/722440 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

The percent content of the mercury compound mentioned below refers to the amount of the pure mercury therein.

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Mercury(II) thiocyanate 592-85-8	209-773-0	080-002-00-6	T+; R26/27/28 R33 N; R50/53	≥ 0.5 - < 2 %
methanol 67-56-1	200-659-6	603-001-00-X	F; R11 T; R23/24/25-39/23/24/25	≥ 1 - < 3 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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Catalogue No.: 114897
Product name: Chloride Test Method: photometric 2.5 - 250 mg/l 100 Tests Spectroquant®
Cl-2

4. First aid measures

First-aid personnel: ensure self-protection!

After inhalation: fresh air.

If breathing stops: immediately apply mechanical ventilation, if necessary oxygen mask.

Immediately call in physician.

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

After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free.

Immediately call in physician.

5. Fire-fighting measures

Suitable extinguishing media:

CO₂, foam, powder.

Special risks:

Combustible. Vapours heavier than air. Development of hazardous combustion gases or vapours possible in the event of fire. The following may develop in event of fire: sulfur dioxide.

Special protective equipment for fire fighting:

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Other information:

Contain escaping vapours with water. Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:

Do not inhale vapours/aerosols. Avoid substance contact. Ensure supply of fresh air in enclosed rooms.

Environmental-protection measures:

Do not allow to enter sewerage system.

Procedures for cleaning / absorption:

Take up with liquid-absorbent material (e.g. Chemizorb®). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

Notes for safe handling:

Work under hood. Do not inhale substance. Avoid generation of vapours/aerosols.

Storage:

Tightly closed in a well-ventilated place. Accessible only for authorised persons. At +15°C to +25°C.

The data apply to the entire pack.

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Cl-2

8. Exposure controls/personal protection

Specific control parameter

BAT Germany (biol. tolerance value)

Name	Methanol
Parametr	Methanol
Values	30 mg/l
Test material	urine
test extraction, time	c,b
Name	Mercury, metallic and inorganic compounds
Parametr	Mercury
Values	25 µg/l
Test material	blood
test extraction, time	a
Parametr	Mercury
Values	100 µg/l
Test material	urine
test extraction, time	a

TRGS 900

Name	Dimethyl sulfoxide
Value	160 mg/m ³
Skin resorption	Risk of skin absorption
Name	Mercury (inorganic mercury compounds)
Value	0.1 mg/m ³ inhalable fraction. The limit refers to the metal content as the analytical calculation basis.
Peak limit	4 exceeding factor: 4-fold in 15 minutes
Skin resorption	Risk of skin absorption
Name	Methanol
Value	200 ml/m ³ 270 mg/m ³
Peak limit	4 exceeding factor: 4-fold in 15 minutes
Embryotoxic	Y Substances with which no foetotoxic risk is to be expected when observing the maximum allowable concentration (MAC Germany) and the biological tolerance value at the workplace (BAT Germany).
Skin resorption	Risk of skin absorption

Personal protective equipment:

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

Respiratory protection: required when vapours/aerosols are generated. filter ABEK
Eye protection: required

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Catalogue No.: 114897
Product name: Chloride Test Method: photometric 2.5 - 250 mg/l 100 Tests Spectroquant®
Cl-2

Hand protection: In full contact:
Glove material: polychloroprene
Layer thickness: 0.65 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: natural latex
Layer thickness: 0.6 mm
Breakthrough time: > 240 Min.

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374, for example KCL 720 Camapren® (full contact), 706 Lapren® (splash contact). This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. 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).

Industrial hygiene:
Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Under no circumstances eat or drink at workplace. Work under hood . Do not inhale substance.

9. Physical and chemical properties

Form:	liquid
Colour:	colourless
Odour:	almost odourless
pH value	not available
Melting point	not available
Boiling point	not available
Ignition temperature	not available
Flash point	not available
Explosion limits	lower not available
	upper not available
Density	not available
Solubility in water	(20 °C) soluble

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According to EC Directive 91/155/EEC

Catalogue No.: 114897
Product name: Chloride Test Method: photometric 2.5 - 250 mg/l 100 Tests Spectroquant®
Cl-2

10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

Violent reactions possible with: alkali metals, hydrides, nitrates, halogen-halogen compounds, perchloric acid, perchlorates, chlorates, nonmetallic oxyhalides, oxyhalogenic compounds, acid halides, nitrogen oxides, sulfur oxides, strong oxidizing agents.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

hygroscopic;
incompatible with various plastics, metals (in the presence of atmospheric oxygen and/or moisture).
Explosible with air in a vaporous/gaseous state when heated.

11. Toxicological information

Acute toxicity

Quantitative data on the toxicity of this product are not available.

Further toxicological information

Property that must be anticipated on the basis from the components of the preparation:

After skin contact: Slight irritations. Danger of skin absorption.

After eye contact: Slight irritations.

Possible symptoms: After uptake: CNS disorders, nausea, tiredness, headache.

Possible damages: Damage of: liver, kidneys.

Other notes:

Mercury compounds have a cytotoxic and protoplasmatoxic effect. Intoxication symptoms:
acute: contact with eye causes severe lesions. Swallowing and inhalation of dusts damages mucous membranes of gastrointestinal and respiratory tract (metallic taste, nausea, vomiting, abdominal pain, bloody diarrhoea, intestinal burns, glottal oedema, aspiration pneumonia);
drop in blood pressure, cardiac dysrhythmia, circulatory collapse, and renal failure;
chronic: inflammation of the mouth with loss of teeth and mercurial line. The principal signs manifest themselves in the CNS (impaired speech, vision, hearing, and sensitivity, loss of memory, irritability, hallucinations, delirium inter alia).
Danger of cumulative effects.

Further data

Further hazardous properties cannot be excluded.

The product should be handled with the care usual when dealing with chemicals.

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Cl-2

12. Ecological information

Behavior in environmental compartments:
High aquatic toxicity.

Ecotoxic effects:
Quantitative data on the ecological effect of this product are not available.

Biological effects:
Harmful effect on aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Further ecologic data:
The following statements refer to individual components of the preparation:
The following applies to the water-soluble matter contained in inorganic Hg compounds in general (tested with mercury(II) chloride): *Leuciscus idus* LC₅₀: 0.5 mg/l (48h), *Daphnia magna* EC₅₀: 0.005-3,6 mg/l (48h), *Chlorella pyrenoidosa* EC₅₀: 0.3 mg/l (5h), *Pseudomonas fluorescens* IC₅₀: 0.005 mg/l. The toxicity of mercury(II) ions for water organisms depends on the water hardness [source: IPCS].

Do not allow to enter waters, waste water, or soil!

13. Disposal considerations

Product:

Chemicals must be disposed of in compliance with the respective national regulations. Under www.retrologistik.de you will find country- and substance-specific information as well as contact partners.

Packaging:

Merck product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system. Under www.retrologistik.de you will find special information on the respective national conditions as well as contact partners.

14. Transport information

Road & Rail ADR, RID
UN 3316 CHEMIE-TESTSATZ, 9, III

Inland waterway ADN, ADNR not tested

Sea IMDG-Code
UN 3316 CHEMICAL KIT, 9, III
Ems F-A S-P

Air CAO, PAX
UN 3316 CHEMICAL KIT, 9, III

The transport regulations are cited according to international regulations and in the form applicable in Germany. Possible national deviations in other countries are not considered.
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15. Regulatory information

Labelling according to EC Directives

Symbol:	T	Toxic
R-phrases:	23/24/25-33-52/53	Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases:	36/37-45	Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
contains:	Mercury(II) thiocyanate	

German regulations

Water pollution class	2	(polluting substance) VwVwS Anh. 4
Storage class VCI	6.1 B	
Data sheet of the Chemical Professional Association	M017 Solvents M024 Mercury and its compounds M051 Dangerous chemical substances	

Local regulations on chemical accidents: 2

The employment restrictions for young workers in accordance with section 22 of the Youth Employment Protection Law (JArbSchG) are to be observed.

The employment restrictions for expectant and nursing mothers in accordance with sections 4 and 5 of the Maternity Protection Guideline (MuSchRiV) are to be observed.

16. Other information

Text of any R phrases referred to under heading 2:

11
23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
26/27/28
33 Danger of cumulative effects.
39/23/24/25
50/53

Reason for alteration

Chapter 4: first aid measures.
Chapter 5: fire-fighting measures.
Chapter 8: personal protective equipment.

General update.

Contact for information:

HSSE-C/CI * Tel: +49 (0)6151/722775 * Fax: +49 (0)6151/726433 * e-mail:prodsafe@merck.de

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