

Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 03.05.2004
Supersedes edition of 29.04.1998

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

Identification of the product

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-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)6151/72112 * 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: |
|-----------------------------|-----------|--------------|----------------|----------|
| Sulphuric acid 7664-93-9 | 231-639-5 | 016-020-00-8 | C; R35 | 25 % |

(Full text of R-Phrases in heading 16)

3. Hazards identification

Causes severe burns.

4. First aid measures

After inhalation: fresh air. Call in physician.
After skin contact: wash off with plenty of water. Dab with polyethylene glycol 400.
Immediately remove contaminated clothing.
After eye contact: rinse out with plenty of water for at least 10 minutes with the eyelid held wide open. Immediately call in ophthalmologist.
After swallowing: make victim drink plenty of water (if necessary several litres), avoid vomiting (risk of perforation!). Immediately call in physician. Do not attempt to neutralize.

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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: sulfur 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. 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 and neutralizing material (e.g. Chemizorb® H⁺, Art. No. 101595). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

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TRGS 900

| | |
|-------------|---|
| Name | Sulfuric acid |
| Kind of use | others |
| Value | 0.1 mg/m ³ Inhalable fraction. The following regulation applies to the peak limit: short-term exposure duration: max. 15 minutes as mean value, frequency per shift: 4, time interval: min. 1 hour |
| Peak limit | 1 Concentration must not exceed limit concentration. |
| 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). |

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 740 Dermatril® (full contact), 740 Dermatril® (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 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).

Other protective equipment:

Acid-resistant protective clothing.

Industrial hygiene:

Change contaminated clothing and immerse in water. Apply skin-protective barrier cream. Wash hands and face after working with substance.

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9. Physical and chemical properties

| | | |
|----------------------|------------|-------------------------------|
| Form: | liquid | |
| Colour: | colourless | |
| Odour: | odourless | |
| pH value | (20 °C) | ~ 1 |
| Melting point | | not available |
| Boiling point | | ~ 103 °C |
| Ignition temperature | | not available |
| Flash point | | not available |
| Explosion limits | lower | not available |
| | upper | not available |
| Density | (20 °C) | 1.18 g/cm ³ |
| Solubility in water | (20 °C) | soluble (development of heat) |

10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

water, alkali metals, alkali compounds, ammonia, alkaline earth metals, alkaline earth compounds, alkalis, acids, metals, metal alloys, phosphorus, phosphorus oxides, hydrides, halogen-halogen compounds, oxyhalogenic compounds, permanganates, nitrates, carbides, combustible substances, organic solvents, acetylidene, nitriles, organic nitro compounds, anilines, peroxides, picrates, nitrides, lithium silicide.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

hygroscopic; has a corrosive effect;
incompatible with metals, animal/vegetable tissues. Hydrogen may form upon contact with metals (danger of explosion!).

11. Toxicological information

Acute toxicity

LC₅₀ (inhalation, rat): 510 mg/m³ /2 h (calculated on the pure substance).
LD₅₀ (oral, rat): 2140 mg/kg.

Specific symptoms in animal studies:

Eye irritation test (rabbit): burns.

Skin irritation test (rabbit): burns.

Toxicologic values are not available due to other dangerous properties of the substance.

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Subacute to chronic toxicity

Bacterial mutagenicity: Ames test: negative.
No teratogenic effect in animal experiments.

Further toxicological information

Property that must be anticipated on the basis from the components of the preparation:
After inhalation of vapours/aerosols: damage to the affected mucous membranes.
After skin contact: severe burns with formation of scabs.
After eye contact: burns, corneal lesions.
After swallowing: severe pain (risk of perforation!), nausea, vomiting, and diarrhoea.
After a latency period of several weeks possibly pyloric stenosis.

Further data

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

12. Ecological information

Biologic degradation:
Methods for the determination of biodegradability are not applicable to inorganic substances.

Behavior in environmental compartments:
Concentration in organisms is not to be expected.

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

Further ecologic data:
The following applies to sulfuric acid: biological effects: harmful effect on aquatic organisms.
Harmful effect due to pH shift. Toxic effect on fish and algae. Caustic even in diluted form.
Does not cause biological oxygen deficit. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants.
Daphnia toxicity: Daphnia magna EC₅₀: 29 mg/l/24 h (calculated on the pure substance).

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.

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14. Transport information

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

Inland waterway ADN, ADNR not tested

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

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

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: | C | Corrosive |
| R-phrases: | 35 | Causes severe burns. |
| S-phrases: | 26-36/37/39-45 | In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). |

contains: Sulphuric acid

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

M051 Dangerous chemical substances

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

16. Other information

Text of any R phrases referred to under heading 2:

35 Causes severe burns.

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Ag-1

Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 14: transport information.

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.

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Identification of the product

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-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)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

| | | | |
|---------------|--|---------------|--------------|
| CAS-No.: | 7727-21-1 | EC-Index-No.: | 016-061-00-1 |
| M: | 270.33 g/mol | EC-No.: | 231-781-8 |
| Formula Hill: | K ₂ O ₈ S ₂ | | |

3. Hazards identification

Contact with combustible material may cause fire. Harmful if swallowed. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.

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: immediately make victim drink plenty of water. Call in physician.

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According to EC Directive 91/155/EEC

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5. Fire-fighting measures

Suitable extinguishing media:
powder, CO₂.

Extinguishing media not to be used:
water, foam.

Special risks:
Fire-promoting. Keep away from combustible materials. Ambient fire may liberate hazardous vapours.
The following may develop in event of fire: sulfur 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:
Prevent fire-fighting water from entering surface water or groundwater.

6. Accidental release measures

Person-related precautionary measures:
Avoid substance contact. Avoid generation of dusts; do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

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

Procedures for cleaning / absorption:
Take up dry. Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

Notes for safe handling:
Work under hood. Do not inhale substance.

Storage:

Tightly closed. Away from combustible materials and sources of ignition and heat. Dry. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

EC

| | |
|---------------|---|
| Name | Potassium peroxodisulphate |
| Sensitization | Sah Danger of sensitization of the airways and the skin |

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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 dusts 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 740 Dermatril® (full contact), 740 Dermatril® (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 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.

9. Physical and chemical properties

| | |
|--|--|
| Form: | solid |
| Colour: | colourless |
| Odour: | odourless |
| pH value at 50 g/l H ₂ O | (20 °C) ~ 4-5 |
| Melting point | 100 °C (decomposition) |
| Boiling point | not applicable |
| Ignition temperature | not combustible |
| Flash point | not flammable |
| Explosion limits | lower not applicable upper not applicable |
| Vapour pressure | low |
| Density | (20 °C) 2.48 g/cm ³ |
| Bulk density | ~ 780 kg/m ³ |

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Ag-2

Solubility in water (20 °C) 52 g/l
Thermal decomposition ~ 100 °C

10. Stability and reactivity

Conditions to be avoided

Heating (decomposition). (oxygen, sulfur oxides).

Substances to be avoided

water, bases, strong alkalis, acids, metals, heavy metals, silver compounds, reducing agents, combustible substances.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

fire-promoting substance;
strong oxidizing agent.

11. Toxicological information

Acute toxicity

LD₅₀ (oral, rat): 802 mg/kg.

Subacute to chronic toxicity

Sensitization:
Experience in man: May cause sensitization.

Further toxicological information

After inhalation of dust: mucosal irritations, coughing, dyspnoea. Possible damages: pulmonary oedema. Risk of airways sensitization.

After skin contact: Irritations. Risk of skin sensitization.

After eye contact: Irritations.

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

Further data

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

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

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Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-2

12. Ecological information

Biologic degradation:
Methods for the determination of biodegradability are not applicable to inorganic substances.

Ecotoxic effects:
Biological effects:
Reacts with water to form toxic decomposition products.
Fish toxicity: *P.reticulata* LC₅₀: 100 mg/l /96 h.
Daphnia toxicity: *Daphnia magna* EC₅₀: 357 mg/l /24 h.
Bacterial toxicity: *Ps.putida* EC₅₀: 36 mg/l.

Further ecologic data:
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, II

Inland waterway ADN, ADNR not tested

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

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

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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Ag-2

15. Regulatory information

Labelling according to EC Directives

| | | |
|------------|----------------------|---|
| Symbol: | O | Oxidizing |
| | Xn | Harmful |
| R-phrases: | 22-42/43 | Harmful if swallowed. May cause sensitization by inhalation and skin contact. |
| S-phrases: | 22-24-37 | Do not breathe dust. Avoid contact with skin. Wear suitable gloves. |
| EC-No.: | 231-781-8 | EC label |
| contains: | Potassium persulfate | |

German regulations

Water pollution class 1 (slightly polluting substance) VwVwS Anh. 2 KennNr. 1350

Storage class VCI 5.1 B

Data sheet of the Chemical Professional Association M050 Dealing with harmful substances
M004 Irritant substances/corrosive substances

Local regulations on chemical accidents: 3

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

Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 14: transport information.

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.

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

Identification of the product

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests Spectroquant®
Ag-3

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)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Dilute ammonia solution.

Hazardous ingredients:

Name according to EC Directives:

| CAS-No. | EC No. | EC-Index-No. | Classification | Content: |
|------------------|-----------|--------------|------------------|--------------|
| ammonia solution | | | | |
| 7664-41-7 | 231-635-3 | 007-001-01-2 | C; R34 N; R50 | ≥ 5 - < 10 % |

(Full text of R-Phrases in heading 16)

3. Hazards identification

Irritating to eyes, respiratory system 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: immediately make victim drink plenty of water (if necessary several litres). Call in physician.

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Spectroquant®
Ag-3

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:
Avoid substance contact. Do not inhale vapours/aerosols. 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 and neutralizing material (e.g. Chemizorb® OH⁻, Art. No. 101596). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

EC

| | |
|-------|--|
| Name | Ammonia |
| Value | 20 ml/m ³ 14 mg/m ³ |

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Ag-3

TRGS 900

| | |
|-------------|--|
| Name | Ammonia |
| Value | 50 ml/m ³ 35 mg/m ³ |
| Peak limit | =1= Concentration must not exceed limit concentration. |
| 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). |

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 740 Dermatril® (full contact), 740 Dermatril® (splash contact). The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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Industrial hygiene:

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

9. Physical and chemical properties

| | | |
|----------------------|------------|---------------|
| Form: | liquid | |
| Colour: | colourless | |
| Odour: | of ammonia | |
| pH value | (20 °C) | alkaline |
| Melting point | | not available |
| Boiling point | | not available |
| Ignition temperature | | not available |

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Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
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Ag-3

| | | |
|---------------------|---------|------------------------|
| Flash point | | not available |
| Explosion limits | lower | not available |
| | upper | not available |
| Density | (20 °C) | 0.96 g/cm ³ |
| Solubility in water | (20 °C) | soluble |

10. Stability and reactivity

Conditions to be avoided

Heating.

Substances to be avoided

alkalis, iodine, strong acids, halogens, mercury oxide, silver.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

incompatible with various metals and metal alloys (i.a. zinc, copper).
Explosible with air in a vaporous/gaseous state when heated.

11. Toxicological information

Acute toxicity

LC₅₀ (inhalation, rat): 2000 ppm(V) /4 h (anhydrous substance).

LD₅₀ (oral, rat): 350 mg/kg (anhydrous substance).

Further toxicological information

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

After inhalation: Irritations of the mucous membranes, coughing, and dyspnoea. Possible damages: bronchitis, pulmonary oedema.

After skin contact: Irritations.

After eye contact: Irritations.

After swallowing: mucosal irritations, gastric pain, nausea, bloody vomiting, collapse, shock, dyspnoea, unconsciousness.

Further data

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

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12. Ecological information

Applicable to the ecotoxic determinant component:

Ecotoxic effects:

Biological effects:

Harmful effect due to pH shift.

Fish toxicity: *S.gairdnerii* LC₅₀: 0.53 mg/l /96 h (anhydrous substance).

Bacterial toxicity: *Photobacterium phosphoreum* EC₅₀: 2 mg/l /5 min microtox test.

Further ecologic data:

The following applies to ammonium ions in general: biological effects: fish: toxic as from 0.3 mg/l ; nourishment for fish: toxic as from 0.3 mg/l .

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, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code

UN 3316 CHEMICAL KIT, 9, II

Ems F-A S-P

Air CAO, PAX

CHEMICAL KIT, 9, UN 3316, II

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: ---

S-phrases: ---

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-3

German regulations

Water pollution class 2 (polluting substance) VwVwS Anh. 4

Storage class VCI 10-13

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

M051 Dangerous chemical substances

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

16. Other information

Text of any R phrases referred to under heading 2:

34 Causes burns.

50 Very toxic to aquatic organisms.

Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 14: transport information.

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

According to EC Directive 91/155/EEC

Date of issue: 03.05.2004
Supersedes edition of 29.04.1998

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

Identification of the product

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-4

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)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Dye solution in organic solvent.

Hazardous ingredients:

Name according to EC Directives:

| CAS-No. | EC No. | EC-Index-No. | Classification | Content: |
|-----------------------|-----------|--------------|----------------|--------------|
| Eosin G 17372-87-1 | 241-409-6 | | Xi; R36 | ≥ 1 - < 10 % |

(Full text of R-Phrases in heading 16)

3. Hazards identification

No hazardous product as specified in Directive 67/548/EEC.

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.
After swallowing: make victim drink plenty of water. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry). Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Call in physician.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-4

5. Fire-fighting measures

Suitable extinguishing media:
Powder, foam.

Special risks:
Combustible. Vapours heavier than air. Forms explosive mixtures with air at ambient temperatures. Development of hazardous combustion gases or vapours possible in the event of fire. The following may develop in event of fire: sulfur oxides.

Special protective equipment for fire fighting:
Do not stay in dangerous zone without self-contained breathing apparatus.

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:
Avoid substance contact. Do not inhale vapours/aerosols.

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:

No further requirements.

Storage:

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

TRGS 900

| | |
|-----------------|-------------------------|
| Name | Dimethyl sulfoxide |
| Value | 160 mg/m ³ |
| Skin resorption | Risk of skin absorption |

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-4

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 A (acc. to DIN 3181) for vapours of organic compounds

Eye protection: required

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:

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

9. Physical and chemical properties

| | |
|----------------------|--|
| Form: | liquid |
| Colour: | red |
| Odour: | characteristic odour |
| pH value | not available |
| Melting point | not available |
| Boiling point | ~ 189 °C |
| Ignition temperature | ~ 270 °C |
| Flash point | ~ 95 °C |
| Explosion limits | lower ~ 1.8 Vol% |
| | upper not available |
| Density | (20 °C) ~ 1.1 g/cm ³ |
| Solubility in water | (20 °C) soluble |
| log Pow: | -1.35 (Dimethylsulfoxide) (experimental) |

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-4

10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

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; inflammable;
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

Applicable to the main component:

LD₅₀ (dermal, rat): 40000 mg/kg.

LD₅₀ (oral, rat): 14500 mg/kg.

Specific symptoms in animal studies:

Eye irritation test (rabbit): Slight irritations.

Skin irritation test (rabbit): Slight irritations.

Subacute to chronic toxicity

Applicable to the main component:

Sensitization:

Sensitization test (guinea pig): negative.

Bacterial mutagenicity: Ames test: negative.

Further toxicological information

Property that must be anticipated on the basis from the toxicological main component of the preparation:

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

After eye contact: Slight irritations.

After uptake: Possible symptoms: CNS disorders, nausea, tiredness, headache. Possible damages: Damage of: liver, kidneys.

Further data

Further hazardous properties cannot be excluded.

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

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-4

12. Ecological information

Applicable to the main component:

Abiotic degradation:
Rapid degradation. (air)

Biologic degradation:
Biodegradation: 3.1 % /14 d.
Biologically not readily degradable.

Behavior in environmental compartments:
Distribution: log p(o/w): -1.35 (Dimethylsulfoxide).
No bioaccumulation is to be expected (log P(o/w) <1).

Ecotoxic effects:
Biological effects:
Fish toxicity: *L.macrochirus* LC₅₀: 33500 mg/l /48 h.
Bacterial toxicity: activated sludge EC₅₀: 10-100 mg/l /30 min.

Further ecologic data:
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, II

Inland waterway ADN, ADNR not tested

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

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

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 !

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-4

15. Regulatory information

Labelling according to EC Directives

Symbol: ---
R-phrases: ---
S-phrases: ---

German regulations

Water pollution class 1 (slightly polluting substance) VwVwS Anh. 4
Storage class VCI 10-13
Data sheet of the Chemical Professional Association M017 Solvents

16. Other information

Text of any R phrases referred to under heading 2:

36 Irritating to eyes.

Reason for alteration

Chapter 8: personal protective equipment.
Chapter 14: transport information.

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

According to EC Directive 91/155/EEC

Date of issue: 03.05.2004
Supersedes edition of 29.04.1998

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

Identification of the product

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

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)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Aqueous solution of organic compounds.

Hazardous ingredients:

Name according to EC Directives:

| CAS-No. | EC No. | EC-Index-No. | Classification | Content: |
|------------------------------------|-----------|--------------|----------------|---------------|
| N-Methyl-2-pyrrolidone 872-50-4 | 212-828-1 | 606-021-00-7 | Xi; R36/38 | ≥ 20 - < 50 % |

(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: immediately make victim drink plenty of water (if necessary several litres). Call in physician.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

5. Fire-fighting measures

Suitable extinguishing media:
Water, foam, powder.

Special risks:
Preparation with combustible ingredients. Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire. The following may develop in event of fire: nitrous gases.

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:
Avoid substance contact. Do not inhale vapours/aerosols. 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:

No further requirements.

Storage:

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

TRGS 900

| | |
|-----------------|--|
| Name | N-Methyl-2-pyrrolidone |
| Value | 19 ml/m ³ 80 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.

Eye protection: required

Hand protection:

In full contact:

Glove material: butyl rubber

Layer thickness: 0.7 mm

Breakthrough time: > 480 Min.

In splash contact:

Glove material: natural latex

Layer thickness: 0.6 mm

Breakthrough time: > 60 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 898 Butoject® (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:

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

9. Physical and chemical properties

| | |
|----------------------|-----------------------------|
| Form: | liquid |
| Colour: | white to slightly yellowish |
| Odour: | odourless |
| pH value | not available |
| Melting point | not available |
| Boiling point | not available |
| Ignition temperature | not available |
| Flash point | not available |

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

| | | |
|---------------------|---------|--------------------------|
| Explosion limits | lower | not available |
| | upper | not available |
| Density | (20 °C) | ~ 1.03 g/cm ³ |
| Solubility in water | (20 °C) | soluble |

10. Stability and reactivity

Conditions to be avoided

Strong heating.

Substances to be avoided

strong oxidizing agents (fire-promoting substances), strong acids.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

Explosible with air in a vaporous/gaseous state when heated.

11. Toxicological information

Acute toxicity

The following statements refer to the toxicological chief component of the preparation:

LC₅₀ (inhalation, rat): 3.1-8.8 mg/l /4 h.

LD₅₀ (dermal, rabbit): 8000 mg/kg.

LD₅₀ (oral, rat): 3598 mg/kg.

Specific symptoms in animal studies:

Eye irritation test (rabbit): Irritations.

Subacute to chronic toxicity

The following statements refer to the toxicological chief component of the preparation:

Sensitization:

Sensitization test (guinea pig): negative.

Patch test (humans): negative.

Bacterial mutagenicity: Ames test: negative.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

Further toxicological information

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

After inhalation of vapours: Irritation symptoms in the respiratory tract.

After skin contact: Irritations. Danger of skin absorption.

After eye contact: Irritations.

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

Other notes:

The following applies to ketones in general: when vapours/aerosols occur, mucosal irritations, coughing, and dyspnoea after inhalation. The absorption of large quantities leads to: CNS depression (narcosis). Repeated skin contact leads to a degreasing effect, with secondary inflammation possible. Toxic effects on the liver and kidneys cannot be excluded after high doses. The inhalation of droplets may result in the formation of oedemas in the respiratory tract.

Further data

Further hazardous properties cannot be excluded.

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

12. Ecological information

Applicable to the ecotoxic determinant component:

Ecotoxic effects:

Biological effects:

Fish toxicity: *L. idus* LC₅₀: 4000 mg/l /96 h.

Daphnia toxicity: *Daphnia magna* EC₅₀: ~4897 mg/l /48 h.

Algal toxicity: *Desmodesmus subspicatus* IC₅₀: >500 mg/l /72 h.

Bacterial toxicity: bacteria EC₅₀: >9000 mg/l /48 h.

Further ecologic data:

BOD₅: 1.1 g/g; COD: 1.6 g/g.

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.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

14. Transport information

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

Inland waterway ADN, ADNR not tested

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

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

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: ---

S-phrases: ---

German regulations

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

Storage class VCI 10-13

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

M050 Dealing with harmful substances

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

16. Other information

Text of any R phrases referred to under heading 2:

36/38 Irritating to eyes and skin.

Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 8: personal protective equipment.

Chapter 14: transport information.

General update.

Contact for information:

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

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-5

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

According to EC Directive 91/155/EEC

Date of issue:
Supersedes edition of

03.05.2004
29.04.1998

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

Identification of the product

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-6

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)6151/72112 * Fax: +49 (0)6151/72-7780

2. Composition/information on ingredients

Aqueous solution of organic compounds.

3. Hazards identification

No hazardous product as specified in Directive 67/548/EEC.

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.
After swallowing: make victim drink plenty of water. Consult doctor if feeling unwell.

5. Fire-fighting measures

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

Special risks:
Non-combustible.

Other information:
Prevent fire-fighting water from entering surface water or groundwater.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-6

6. Accidental release measures

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

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:

No further requirements.

Storage:

Tightly closed. Away from combustible materials and sources of ignition and heat. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

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 740 Dermatril® (full contact), 740 Dermatril® (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).

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-6

Industrial hygiene:
Change contaminated clothing. Wash hands after working with substance.

9. Physical and chemical properties

| | | |
|----------------------|------------|---------------|
| Form: | liquid | |
| Colour: | colourless | |
| Odour: | 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 |

10. Stability and reactivity

Conditions to be avoided

Heating.

Substances to be avoided

The generally known reaction partners of water.

Hazardous decomposition products

not known to date

Further information

none

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:

Systemic effects: After absorption of large quantities: disturbed electrolyte balance.

Further data

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

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-6

12. Ecological information

Ecotoxic effects:

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

Further ecologic data:

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

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, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code

UN 3316 CHEMICAL KIT, 9, II

Ems F-A S-P

Air CAO, PAX

CHEMICAL KIT, 9, UN 3316, II

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: ---

R-phrases: ---

S-phrases: ---

German regulations

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

Storage class VCI 10-13

16. Other information

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114831
Product name: Silver Test Method: photometric 0.25 - 3.00 mg/l Ag 100 Tests
Spectroquant®
Ag-6

Reason for alteration

Chapter 2: change in ingredients data.
Chapter 14: transport information.

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.