

Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 27.07.2005
Supersedes edition of 15.05.2002

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

Identification of the product

Catalogue No.: 114770
Product name: Manganese Test Method: photometric also refill pack for art.
1.14768.0001 0.010 - 10.00 mg/l Mn 500 Tests Spectroquant®
Mn-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 ammoniacal 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: make victim drink plenty of water, call in physician.

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5. Fire-fighting measures

Suitable extinguishing media:
Water, CO₂, foam, powder.

Special risks:
Preparation with combustible ingredients. Development of hazardous combustion gases or vapours possible in the event of fire.

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. 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. 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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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).
Name	2,2',2''-Nitrioltriethanol
Value	5 mg/m ³ inhalable fraction

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:	nitrile rubber
Layer thickness:	0.40 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 898 Butoject® (full contact), 730 Camatril® -Velours (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.

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

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Ignition temperature		not available
Flash point		not available
Explosion limits	lower	not available
	upper	not available
Density	(20 °C)	1.06 g/cm ³
Solubility in water	(20 °C)	soluble

10. Stability and reactivity

Conditions to be avoided
no information available

Substances to be avoided

Violent reactions possible with: alkalis (Formed could be: ammonia), strong oxidizing agents, nitriles, nitrous acid.

Hazardous decomposition products
no information available

Further information

incompatible with various metals and metal alloys (i.a. zinc, copper).

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: Irritations of the mucous membranes, coughing, and dyspnoea.

After skin contact: Irritations.

After eye contact: Irritations.

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

Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.

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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12. Ecological information

Ecotoxic effects:

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

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

Entire package: not subject to transport regulations.

15. Regulatory information

Labelling according to EC Directives

Symbol: Xi Irritant

R-phrases: ---

S-phrases: ---

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.

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Reduced labelling on the container due to small quantity.

Reason for alteration

Chapter 2: change in ingredients data.

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

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Identification of the product

Catalogue No.: 114770
Product name: Manganese Test Method: photometric also refill pack for art.
1.14768.0001 0.010 - 10.00 mg/l Mn 500 Tests Spectroquant®
Mn-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

Aqueous solution.

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Hydroxylammonium chloride 5470-11-1	226-798-2	612-123-00-2	Xn; R22-48/22 Xi; R36/38 R43 N; R50	≥ 1 - < 10 %
Formaldehyde 50-00-0	200-001-8	605-001-00-5	Carc. Cat. 3; R40 T; R23/24/25 C; R34 R43	≥ 1 - < 3 %
methanol 67-56-1	200-659-6	603-001-00-X	F; R11 T; R23/24/25-39/23/24/25	≥ 0.1 - < 1 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

Limited evidence of a carcinogenic effect. May cause sensitization by skin contact.

4. First aid measures

After inhalation: fresh air. Consult doctor if feeling unwell.
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.
After swallowing: immediately make victim drink plenty of water. Call in physician.

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Mn-2

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.

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. 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:

Notes for safe handling:
Work under hood. Do not inhale substance. Avoid generation of vapours/aerosols.

Storage:

Tightly closed. At +15°C to +25°C.

The data apply to the entire pack.

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

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EC

Name Formaldehyde
Carcinogenic C 3:owing possible carcinogenic effects for man
Sensitization Sh Danger of sensitization of the skin

Name Hydroxylammonium chloride
Sensitization Sh Danger of sensitization of the skin

TRGS 900

Name Formaldehyde
Value 0.5 ml/m³
0.62 mg/m³
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).

Skin resorption Risk of skin absorption

Name Methanol
Value 200 ml/m³
270 mg/m³
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

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Hand protection:

In full contact:
Glove material: butyl rubber
Layer thickness: 0.7 mm
Breakthrough time: > 480 Min.

In splash contact:
Glove material: butyl rubber
Layer thickness: 0.7 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 898 Butoject® (full contact), 898 Butoject® (splash contact). The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

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:	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	(20 °C) 1.03 g/cm ³
Solubility in water	(20 °C) soluble

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Catalogue No.: 114770
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10. Stability and reactivity

Conditions to be avoided

no information available

Substances to be avoided

The generally known reaction partners of water.

Hazardous decomposition products

no information available

11. Toxicological information

Acute toxicity

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

Subacute to chronic toxicity

Applicable to partial component(s):

The carcinogenic potential requires further clarification.

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. Inhalation may lead to the formation of oedemas in the respiratory tract.

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

After eye contact: Slight irritations.

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

Systemic effects: Methaemoglobin formation after intensive contact with skin cannot be excluded.

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.

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.

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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

Entire package: not subject to transport regulations.

15. Regulatory information

Labelling according to EC Directives

Symbol:	Xn	Harmful
R-phrases:	40-43	Limited evidence of a carcinogenic effect. May cause sensitization by skin contact.
S-phrases:	36/37	Wear suitable protective clothing and gloves.
contains:	Formaldehyde Hydroxylammonium chloride	

German regulations

Water pollution class 3 (highly polluting substance) VwVwS Anh. 4

Storage class VCI 10-13

Data sheet of the Chemical Professional Association M051 Dangerous chemical substances

M010 Formaldehyde

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	Highly flammable.
22	Harmful if swallowed.
23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
34	Causes burns.
36/38	Irritating to eyes and skin.
39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
40	Limited evidence of a carcinogenic effect.
43	May cause sensitization by skin contact.
48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
50	Very toxic to aquatic organisms.

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

Catalogue No.: 114770
Product name: Manganese Test Method: photometric also refill pack for art. 1.14768.0001
0.010 - 10.00 mg/1 Mn 500 Tests Spectroquant®
Mn-2

Reason for alteration

Chapter 2: change in ingredients data.

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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Identification of the product

Catalogue No.: 114770
Product name: Manganese Test Method: photometric also refill pack for art.
1.14768.0001 0.010 - 10.00 mg/l Mn 500 Tests Spectroquant®
Mn-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)6151/722440 * 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:
5470-11-1	226-798-2	612-123-00-2	Xn; R22-48/22 Xi; R36/38 R43 N; R50	≥ 10 - < 20 %

(Full text of R-Phrases in heading 16)

3. Hazards identification

May cause sensitization by skin contact. Harmful: danger of serious damage to health by prolonged exposure if swallowed.

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 if necessary.
After swallowing: immediately make victim drink plenty of water. Call in physician.

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Mn-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: hydrochloric acid, 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 material (e.g. Chemizorb®). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed. At +15°C to +25°C.

The data apply to the entire pack.

8. Exposure controls/personal protection

Specific control parameter

EC

Name	Hydroxylammonium chloride
Sensitization	Sh Danger of sensitization of the skin

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.

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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:

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face 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	(20 °C) 1.13 g/cm ³
Solubility in water	(20 °C) soluble

Merck Safety Data Sheet

According to EC Directive 91/155/EEC

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Mn-3

10. Stability and reactivity

Conditions to be avoided

no information available

Substances to be avoided

The generally known reaction partners of water.

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: Slight irritations. dermatitis. Risk of skin sensitization.

After eye contact: Slight irritations.

After swallowing: Irritations of: gastrointestinal tract.

After absorption: drop in blood pressure, cyanosis, Risk of methaemoglobin formation.

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.

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.

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14. Transport information

Entire package: not subject to transport regulations.

15. Regulatory information

Labelling according to EC Directives

Symbol:	Xn	Harmful
R-phrases:	43-48/22	May cause sensitization by skin contact. Harmful: danger of serious damage to health by prolonged exposure if swallowed.
S-phrases:	24-37	Avoid contact with skin. Wear suitable gloves.
contains:	Hydroxylammonium chloride	

German regulations

Water pollution class	3	(highly polluting substance)	VwVwS Anh. 4
Storage class VCI	10-13		
Data sheet of the Chemical Professional Association	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.

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:

22	Harmful if swallowed.
36/38	Irritating to eyes and skin.
43	May cause sensitization by skin contact.
48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
50	Very toxic to aquatic organisms.

Reason for alteration

Chapter 2: change in ingredients data.

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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