

# Safety Data Sheet

According to EC Directive 91/155/EEC

Date of issue: 26.04.2004  
Supersedes edition of 08.01.1999

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

### Identification of the product

Catalogue No.: 109713  
Product name: Nitrate Test Method: photometric, DMP 0.10 - 25.0 mg/l NO<sub>3</sub>-N 90 Tests  
0.4 - 110.7 mg/l NO<sub>3</sub><sup>-</sup> Spectroquant®  
NO<sub>3</sub>-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

Mixture of acids.

### 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 - < 50 %
Phosphoric acid 7664-38-2	231-633-2	015-011-00-6	C; R34	≥ 25 - < 50 %

(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, phosphorus 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.

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## 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<sup>+</sup>, Art. No. 101595). Forward for disposal. Clean up affected area.

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## 7. Handling and storage

*Handling:*

No further requirements.

*Storage:*

Tightly closed. At +15°C to +25°C.

The data apply to the entire pack.

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## 8. Exposure controls/personal protection

*Specific control parameter*

EC	
Name	ortho-Phosphoric acid
Value	1 mg/m <sup>3</sup>

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## TRGS 900

Name	Sulfuric acid
Kind of use	others
Value	0.1 mg/m <sup>3</sup> 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).
Name	ortho-Phosphoric acid
Value	1 mg/m <sup>3</sup>
Peak limit	2 exceeding factor: 2-fold in 15 minutes

### *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: natural latex  
Layer thickness: 0.6 mm  
Breakthrough time: > 480 Min.  
In splash contact:  
Glove material: natural latex  
Layer thickness: 0.6 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 706 Lapren® (full contact), 706 Lapren® (splash contact). The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet 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](http://www.kcl.de)).

Other protective equipment: Acid-resistant protective clothing.

### Industrial hygiene:

Immediately change contaminated clothing. 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	strongly 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	(20 °C) ~ 1.73 g/cm <sup>3</sup>
Solubility in water	(25 °C) soluble

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## 10. Stability and reactivity

### *Conditions to be avoided*

Strong heating.

### *Substances to be avoided*

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

### *Hazardous decomposition products*

in the event of fire: See chapter 5.

### *Further information*

has a corrosive effect;  
incompatible with metals, animal/vegetable tissues.

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## 11. Toxicological information

### *Acute toxicity*

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

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## *Further toxicological information*

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

After inhalation of 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*

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:

Depending on the concentration, phosphorus compounds may contribute to the eutrophication of water supplies.

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 EC<sub>50</sub>: 29 mg/l/24 h (calculated on the pure substance).

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

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## 13. Disposal considerations

*Product:*

Chemicals must be disposed of in compliance with the respective national regulations. Under [www.retrologistik.de](http://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](http://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 !**

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## 15. Regulatory information

### Labelling according to EC Directives

Symbol:	C	Corrosive
R-phrases:	35	Causes severe burns.
S-phrases:	26-30-36/37/39-45	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Never add water to this product. 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  
Phosphoric 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.

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## 16. Other information

Text of any R phrases referred to under heading 2:

34 Causes burns.  
35 Causes severe burns.

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## *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

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*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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### 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

Propanolic solution.

### Hazardous ingredients:

#### Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Xylenol 576-26-1	209-400-1	604-006-00-X	T; R24/25 C; R34 N; R51/53	≥ 0.1 - < 1 %
2-Propanol 67-63-0	200-661-7	603-117-00-0	F; R11 Xi; R36 R67	≥ 10 - < 20 %

(Full text of R-Phrases in heading 16)

## 3. Hazards identification

Flammable. Vapours may cause drowsiness and dizziness.

## 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.  
After eye contact: rinse out with plenty of water with the eyelid held wide open. Call in ophthalmologist if necessary.  
After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Immediately call in physician. Laxative: Sodium sulfate (1 tablespoon/1/4 l water). Activated charcoal.



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## 5. Fire-fighting measures

Suitable extinguishing media:  
powder, foam.

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

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

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

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## 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; risk of explosion!

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

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## 7. Handling and storage

*Handling:*

Notes for prevention of fire and explosion:  
Keep away from sources of ignition. Take measures to prevent electrostatic charging.

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.

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## 8. Exposure controls/personal protection

*Specific control parameter*

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BAT Germany (biol. tolerance value)

Name Propan-2-ol  
Parametr Acetone  
Values 50 mg/l  
Test material blood  
test extraction, time b

Parametr Acetone  
Values 50 mg/l  
Test material urine  
test extraction, time b

TRGS 900

Name Propan-2-ol  
Value 200 ml/m<sup>3</sup>  
500 mg/m<sup>3</sup>

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).

## *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

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](http://www.kcl.de)).

## Industrial hygiene:

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance. Work under hood . Do not inhale substance.

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NO<sub>3</sub>-2

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## 9. Physical and chemical properties

Form:	liquid		
Colour:	weakly yellowish		
Odour:	of solvents		
pH value	(25 °C)	5.0-5.5	undiluted
Melting point		not available	
Boiling point		not available	
Ignition temperature		not available	
Flash point		29 °C	
Explosion limits	lower	not available	
	upper	not available	
Vapour pressure	(20 °C)	43 hPa	(2-Propanol)
Density	(20 °C)	0.97 g/cm <sup>3</sup>	
Solubility in water	(20 °C)	soluble	

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## 10. Stability and reactivity

*Conditions to be avoided*

Heating.

*Substances to be avoided*

The generally known reaction partners of water.

*Hazardous decomposition products*

no information available

*Further information*

unsuitable working materials: various plastics, rubber;  
Explosible with air in a vaporous/gaseous state when heated.

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## 11. Toxicological information

*Acute toxicity*

LC<sub>50</sub> (inhalation, rat): 46.5 mg/l /4 h (2-Propanol).  
LD<sub>50</sub> (dermal, rabbit): 12800 mg/kg (2-Propanol).  
LD<sub>50</sub> (oral, rat): 5045 mg/kg (2-Propanol).

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NO<sub>3</sub>-2

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## *Further toxicological information*

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

After inhalation of vapours: drowsiness, drowsiness.

After skin contact: Slight irritations.

After eye contact: Slight irritations.

After swallowing: After accidental swallowing the substance may pose a risk of aspiration.

Passage into the lung (vomiting!) can result in a condition resembling pneumonia (chemical pneumonitis).

After absorption: headache, dizziness, inebriation, unconsciousness, narcosis.

After uptake of large quantities: respiratory paralysis, coma.

## *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**

Applicable to partial component(s): (isopropanol):

Biologic degradation:

Readily biodegradable.

Ecotoxic effects:

Biological effects:

Fish toxicity: *P.promelas* LC<sub>50</sub>: 9640 mg/l /96 h.

Daphnia toxicity: *Daphnia magna* EC<sub>50</sub>: 13299 mg/l /48 h. Algal toxicity: *Desmodesmus subspicatus*

IC<sub>50</sub>: >1000 mg/l /72 h.

Bacterial toxicity: *Photobacterium phosphoreum* EC<sub>50</sub>: 22000 mg/l /15 min microtox test.

Maximum permissible toxic concentration:

algae: *Sc.quadricauda* IC<sub>5</sub>: 1800 mg/l /8 d.

Bacteria: *Ps.putida* EC<sub>5</sub>: 1050 mg/l /16 h. *M.aeruginosa* EC<sub>5</sub>: 1000 mg/l /8 d.

Protozoa: *E.sulcatum* EC<sub>5</sub>: 4930 mg/l /72 h.

Further ecologic data:

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](http://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](http://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 !**

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## 15. Regulatory information

*Labelling according to EC Directives*

Symbol: ---  
R-phrases: 10 Flammable.  
S-phrases: ---

*German regulations*

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

Storage class VCI 3 A

Data sheet of the Chemical Professional Association M017 Solvents

M018 Phenol, cresols and xylenols

M050 Dealing with harmful substances

Local regulations on chemical accidents: 6

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

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## 16. Other information

Text of any R phrases referred to under heading 2:

11 Highly flammable.  
24/25 Toxic in contact with skin and if swallowed.  
34 Causes burns.  
36 Irritating to eyes.  
51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
67 Vapours may cause drowsiness and dizziness.

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Reduced labelling on the container due to small quantity.

*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

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*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.*