

Safety Data Sheet

According to EC Directive 91/155/EEC

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

Identification of the product

Catalogue No.: 100456
Product name: Nitric acid 65% GR for analysis ISO

Use of the substance/preparation

Reagent for analysis

Company/undertaking identification

Company: Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0
Emergency telephone No.: Please contact the regional Merck representation in your country.

2. Composition/information on ingredients

Hazardous ingredients:

Name according to EC Directives:

CAS-No.	EC No.	EC-Index-No.	Classification	Content:
Nitric acid 7697-37-2	231-714-2	007-004-00-1	O; R8 C; R35	65 %

(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: 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:
Cool container with spray water from a safe distance. 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® H⁺, Merck Art. No. 101595). Forward for disposal. Clean up affected area.

7. Handling and storage

Handling:

No further requirements.

Storage:

Tightly closed. Store at +2°C to +25°C.

8. Exposure controls/personal protection

Specific control parameter

EC

Name	nitric acid
Short term (<15 min.)	1 ml/m ³ 2.6 mg/m ³

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 E-(P2)

Eye protection: required

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Hand protection:

In full contact:

Glove material: viton
Layer thickness: 0.70 mm
Breakthrough time: > 480 Min.

In splash contact:

Glove material: natural latex
Layer thickness: 0.6 mm
Breakthrough time: > 120 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 890 Vitoject® (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).

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.

9. Physical and chemical properties

Form:	liquid		
Colour:	colourless		
Odour:	pungent		
pH value	(20 °C)	0	strongly acid
Melting point		~ -32 °C	
Boiling point		121 °C	
Ignition temperature		not applicable	
Flash point		not applicable	
Explosion limits	lower	not available	
	upper	not available	
Vapour pressure	(20 °C)	~ 9.4 hPa	
Density	(20 °C)	1.39 g/cm ³	
Solubility in water	(20 °C)	soluble	
log Pow	(25 °C)	-2.3	(anhydrous substance) (OECD 107)

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10. Stability and reactivity

Conditions to be avoided

Heating.

Substances to be avoided

Risk of explosion with: / Risk of ignition or formation of inflammable gases or vapors with: acetonitrile, acetyliden, alcohols, anilines (Spontaneously flammable.), antimony hydride, arsenic hydride, amines, ammonia, combustible substances, phosphides, aldehydes, dichloromethane, hydrazines, dioxane, acetic acid / acetone, acetic acid anhydride, fluorine, formaldehyde, glycerol / sulfuric acid, hydrogen iodide, chlorates / organic substances, carbon/soot, hydrocarbons, alkali metals, lithium silicide, organic solvents, metals in powder form, organic substances / sulfuric acid, phosphorus, pyridine, sulfur dioxide, hydrogen sulfide, hydrogen selenide, hydrogen peroxide.

Violent reactions possible with: nitriles, antimony, arsenic, boron, ferric oxide, alkalis, sodium hypochlorite.

Hazardous decomposition products

in the event of fire: See chapter 5.

Further information

strong oxidizing agent,
unsuitable working materials: metals (formation of gas: nitrous gases, hydrogen).

11. Toxicological information

Acute toxicity

LC₅₀ (inhalation, rat): 0.13 mg/l / 4 h (nitrogen dioxide) (anhydrous substance).
LDLo (oral, human): 430 mg/kg (anhydrous substance) (IUCLID).

Specific symptoms in animal studies:

Eye irritation test (rabbit): burns (anhydrous substance) (IUCLID).

Skin irritation test (rabbit): burns (anhydrous substance) (IUCLID).

Subacute to chronic toxicity

Bacterial mutagenicity: Ames test: negative. (anhydrous substance) (OECD 471)

Further toxicological information

Strongly corrosive substance.

After inhalation of vapours: burns of mucous membranes, coughing, dyspnoea. Inhalation may lead to the formation of oedemas in the respiratory tract.

After skin contact: burns.

After eye contact: burns, Risk of blindness!

After swallowing: tissue damage (mouth, oesophagus, gastrointestinal tract), strong pain (risk of perforation!), bloody vomiting, death.

Other notes:

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

Further data

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

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12. Ecological information

Behavior in environmental compartments:

Distribution: log Pow: -2.3 (25 °C) (anhydrous substance) (OECD 107).

No bioaccumulation is to be expected (log Pow <1).

Ecotoxic effects:

Biological effects:

Toxic effect on fish and plankton. Harmful effect due to pH shift. Forms corrosive mixtures with water even if diluted. Does not cause biological oxygen deficit. Hazard for drinking water supplies.

Fish toxicity: *Gambusia affinis* LC₅₀: 72 mg/l /96 h (anhydrous substance) (IUCLID).

Further ecologic data:

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

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

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 2031 SALPETERSAEURE, 8, II

Inland waterway ADN, ADNR not tested

Sea IMDG-Code

UN 2031 NITRIC ACID MORE THAN 50% BUT NOT MORE THAN 70%, 8, II

Ems F-A S-B

Air

UN 2031 NITRIC ACID

CAO 8, II

PAX 8, II prohibited

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

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15. Regulatory information

Labelling according to EC Directives

Symbol:	C	Corrosive
R-phrases:	35	Causes severe burns.
S-phrases:	23-26-36/37/39-45	Do not breathe vapour. 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).

Reduced labelling (1999/45/EC, Art. 10, 4)

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).

16. Other information

Text of any R phrases referred to under heading 2:

8	Contact with combustible material may cause fire.
35	Causes severe burns.

Reason for alteration

Chapter 11: toxicological information.
Chapter 12: ecological information.

Chapter 8: specific control parameter.
Chapter 10: stability and reactivity.
Chapter 11: toxicological information.
Chapter 12: ecological information.

General update.

Regional representation:

This information is given on the authorised Safety Data Sheet for your country.

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