

Safety Data Sheet

According to Regulation (EC) No.1907/2006 (REACH)

Date of issue: 07.03.2008
Supersedes edition of 06.03.2007

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

Identification of the product

Catalogue No.: 100630
Product name: Nitric acid 10 mol/l

Use of the substance/preparation

Chemical production

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.
Contact for information: EHSQ/EHS-PI * e-mail:prodsafe@merck.de

2. Hazards identification

Causes severe burns.

3. Composition/information on ingredients

Aqueous solution.

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	≥ 20 - < 50 %

(Full text of R-Phrases in heading 16)

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 water (two glasses at the most), 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:
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. At +15°C to +25°C.

Requirements for storage rooms and containers:
No metal or light-weight-metal containers.

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.

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Respiratory protection: required when vapours/aerosols are generated. filter E-(P2)

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: nitrile rubber
Layer thickness: 0.40 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 706 Lapren® (full contact), 730 Camatril® -Velours (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) < 1

Melting point ~ -28 °C

Boiling point ~ 120 °C

Ignition temperature not available

Flash point not available

Explosion limits lower not available

upper not available

Vapour pressure (20 °C) ~ 9.4 hPa

Density (20 °C) 1.38 g/cm³

Solubility in water (20 °C) soluble

log Pow -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: / organic combustible substances, oxidizable substances, organic solvents, alcohols, ketones, aldehydes, anhydrides, amines, anilines, nitriles, organic nitro compounds, hydrazine and derivatives, acetylidene, metals, metal alloys, metallic oxides, alkali metals, alkaline earth metals, ammonia, alkalis, acids, hydrides, halogens, halogen compounds, nonmetallic oxides, nonmetallic halides, nonmetallic hydrogen compounds, nonmetals, phosphides, nitrides, lithium silicide, hydrogen peroxide.

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) (RTECS).
LDLo (oral, human): 430 mg/kg (anhydrous substance) (Sax).

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.

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

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

Behavior in environmental compartments:
Distribution: log Pow: -2.3 (anhydrous substance) (OECD 107).
No bioaccumulation is to be expected (log Pow <1).
Distribution: Henry constant: 2485 Pa*m³/mol (calculated) (Lit.).
Distribution preferentially in air.

Ecotoxic effects:
Biological effects:
Harmful effect on aquatic organisms. 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 NOT MORE THAN 50%, 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 3:

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

Reason for alteration

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.