

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 5.1 Revision Date 13.02.2014

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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Nitric acid

Product Number : 84392

Brand : Sigma-Aldrich

Index-No. : 007-004-00-1

REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 7697-37-2

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**

Company : Sigma-Aldrich Chemie GmbH  
Industriestrasse 25  
CH-9471 BUCHS

Telephone : +41 81-755-2511

Fax : +41 81-756-5449

E-mail address : eurtechserv@sial.com

**1.4 Emergency telephone number**

Emergency Phone # : +41 81-755-2255  
145(CH)  
+41 44-251-5151 (Tox-Zentrum)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

Oxidizing liquids (Category 3), H272

Skin corrosion (Category 1A), H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

O Oxidising R 8

C Corrosive R35

For the full text of the R-phrases mentioned in this Section, see Section 16.

**2.2 Label elements****Labelling according Regulation (EC) No 1272/2008**

Pictogram



Signal word

Danger

Hazard statement(s)	
H272	May intensify fire; oxidiser.
H314	Causes severe skin burns and eye damage.
Precautionary statement(s)	
P220	Keep/Store away from clothing/ combustible materials.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
Supplemental Hazard Statements	none

### 2.3 Other hazards - none

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Formula	:	HNO <sub>3</sub>
Molecular Weight	:	63,01 g/mol
CAS-No.	:	7697-37-2
EC-No.	:	231-714-2
Index-No.	:	007-004-00-1

#### Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
<b>Nitric acid</b>		
CAS-No.	7697-37-2	Ox. Liq. 3; Skin Corr. 1A; H272, H314
EC-No.	231-714-2	
Index-No.	007-004-00-1	
		<= 100 %

#### Hazardous ingredients according to Directive 1999/45/EC

Component	Classification	Concentration
<b>Nitric acid</b>		
CAS-No.	7697-37-2	O, C, R 8 - R35
EC-No.	231-714-2	
Index-No.	007-004-00-1	
		<= 100 %

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### **4.2 Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### **4.3 Indication of any immediate medical attention and special treatment needed**

no data available

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### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

##### **Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### **5.2 Special hazards arising from the substance or mixture**

nitrogen oxides (NO<sub>x</sub>)

#### **5.3 Advice for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

#### **5.4 Further information**

Use water spray to cool unopened containers.

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### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

#### **6.2 Environmental precautions**

Do not let product enter drains.

#### **6.3 Methods and materials for containment and cleaning up**

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

#### **6.4 Reference to other sections**

For disposal see section 13.

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### **SECTION 7: Handling and storage**

#### **7.1 Precautions for safe handling**

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

#### **7.2 Conditions for safe storage, including any incompatibilities**

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

#### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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### **SECTION 8: Exposure controls/personal protection**

#### **8.1 Control parameters**

##### **Components with workplace control parameters**

#### **8.2 Exposure controls**

##### **Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## Personal protective equipment

### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0,7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

#### Splash contact

Material: Nature latex/chloroprene

Minimum layer thickness: 0,6 mm

Break through time: 120 min

Material tested: Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |  |                                    |
|--|------------------------------------|
| a) Appearance                              | Form: liquid<br>Colour: colourless |
| b) Odour                                   | no data available                  |
| c) Odour Threshold                         | no data available                  |
| d) pH                                      | < 1 at 20 °C                       |
| e) Melting point/freezing point            | no data available                  |
| f) Initial boiling point and boiling range | 120,5 °C - lit.                    |

- |   |  |
|---|--|
| g) Flash point                                  | not applicable   |
| h) Evaporation rate                             | no data available  |
| i) Flammability (solid, gas)                    | no data available  |
| j) Upper/lower flammability or explosive limits | no data available  |
| k) Vapour pressure                              | 11 hPa at 20 °C  |
| l) Vapour density                               | no data available  |
| m) Relative density                             | 1,48 g/cm <sup>3</sup> at 20 °C  |
| n) Water solubility                             | completely soluble   |
| o) Partition coefficient: n-octanol/water       | no data available  |
| p) Auto-ignition temperature                    | no data available  |
| q) Decomposition temperature                    | no data available  |
| r) Viscosity                                    | no data available  |
| s) Explosive properties                         | no data available  |
| t) Oxidizing properties                         | The substance or mixture is classified as oxidizing with the category 3. |

**9.2 Other safety information**  
no data available

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**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

no data available

**10.2 Chemical stability**

Stable under recommended storage conditions.

**10.3 Possibility of hazardous reactions**

no data available

**10.4 Conditions to avoid**

May discolor on exposure to air and light.

**10.5 Incompatible materials**

Alkali metals, Organic materials, Acetic anhydride, Acetonitrile, Alcohols, Acrylonitrile

**10.6 Hazardous decomposition products**

Other decomposition products - no data available

In the event of fire: see section 5

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**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

no data available

LC50 Inhalation - rat - 4 h - 67 ppm

**Skin corrosion/irritation**

Skin - rabbit

Result: Extremely corrosive and destructive to tissue.

(Draize Test)

**Serious eye damage/eye irritation**

no data available

**Respiratory or skin sensitisation**

no data available

**Germ cell mutagenicity**

no data available

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

Reproductive toxicity - rat - Oral

Effects on Newborn: Biochemical and metabolic.

Developmental Toxicity - rat - Oral

Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

**Specific target organ toxicity - single exposure**

no data available

**Specific target organ toxicity - repeated exposure**

no data available

**Aspiration hazard**

no data available

**Additional Information**

RTECS: QU5900000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Inhalation may provoke the following symptoms:, spasm, inflammation and edema of the bronchi, spasm, inflammation and edema of the larynx, pneumonitis, Symptoms and signs of poisoning are:, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed., Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death.

Large doses may cause: conversion of hemoglobin to methemoglobin, producing cyanosis; marked fall in blood pressure, leading to collapse, coma, and possibly death., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Liver - Irregularities - Based on Human Evidence

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**SECTION 12: Ecological information****12.1 Toxicity**

no data available

Toxicity to fish

LC50 - Asterias rubens - 100 - 330 mg/l - 48 h

**12.2 Persistence and degradability**

no data available

**12.3 Bioaccumulative potential**

no data available

**12.4 Mobility in soil**

no data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

## 12.6 Other adverse effects

May be harmful to aquatic organisms due to the shift of the pH.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### 14.1 UN number

ADR/RID: 2032

IMDG: 2032

IATA: 2032

### 14.2 UN proper shipping name

ADR/RID: NITRIC ACID, RED FUMING

IMDG: NITRIC ACID, RED FUMING

IATA: Nitric acid, red fuming

Passenger Aircraft: Not permitted for transport

Cargo Aircraft: Not permitted for transport

Special Provisions: "Keep away from heat" label required.

### 14.3 Transport hazard class(es)

ADR/RID: 8 (5.1, 6.1)

IMDG: 8 (5.1, 6.1)

IATA: 8 (5.1, 6.1)

### 14.4 Packaging group

ADR/RID: I

IMDG: I

IATA: -

### 14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

### 14.6 Special precautions for user

no data available

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## SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

no data available

### 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

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## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3.

H272

May intensify fire; oxidiser.

H314

Causes severe skin burns and eye damage.

Ox. Liq.

Oxidizing liquids

Skin Corr.

Skin corrosion

### Full text of R-phrases referred to under sections 2 and 3

C

Corrosive

O

Oxidising

R 8

Contact with combustible material may cause fire.

R35

Causes severe burns.

**Further information**

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