

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 19.11.2012

Version 10.10

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Catalogue No. 119774

Product name Barium standard solution traceable to SRM from NIST $\text{Ba}(\text{NO}_3)_2$ in HNO_3 0.5 mol/l 1000 mg/l Ba CertiPUR®

REACH Registration Number This product is a mixture. REACH Registration Number see section 3.

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

Identified uses Reagent for analysis

For additional information on uses please refer to the Merck Chemicals portal (www.merck-chemicals.com).

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0

Responsible Department EQ-RS * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2, H315
 Eye irritation, Category 2, H319
 Corrosive to metals, Category 1, H290

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

Classification (67/548/EEC or 1999/45/EC)

Xi Irritant R36/38

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word
 Warning

Hazard statements
 H290 May be corrosive to metals.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Reduced labelling (≤125 ml)


Hazard pictograms



Signal word

Warning

Labelling (67/548/EEC or 1999/45/EC)

Symbol(s)  Xi Irritant

R-phrases(s) 36/38 Irritating to eyes and skin.

Reduced labelling (≤125 ml)

Symbol(s)  Xi Irritant

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Aqueous solution

3.1 Substance

not applicable

3.2 Mixture

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical Name (Concentration)

CAS-No.	Registration number	Classification
<i>nitric acid (>= 1 % - < 5 %)</i>		
7697-37-2	*)	Oxidising liquid, Category 1, H271 Skin corrosion, Category 1A, H314 Corrosive to metals, Category 1, H290

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

Hazardous components (1999/45/EC)

Chemical Name (Concentration)

CAS-No. Classification

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

nitric acid ($\geq 1\%$ - $< 5\%$)
7697-37-2 O, Oxidising; R8
C, Corrosive; R35

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

SECTION 4. First aid measures

4.1 Description of 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. Call in ophthalmologist.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

irritant effects

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

The following applies to soluble barium compounds in general: after swallowing: mucosal irritation, nausea, salivation, vomiting, dizziness, pain, colics, and diarrhoea. Systemic effects include: cardiac dysrhythmias, bradycardia (subdued cardiac activity), rise in blood pressure, shock and circulatory collapse as well as muscular rigidity.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

none

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapours, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

6.2 Environmental precautions

No special precautionary measures necessary.

6.3 Methods and materials for containment and cleaning up

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralising material (e.g. Chemizorb® H⁺, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed.

Storage temperature: no restrictions.

7.3 Specific end use(s)

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

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

8.2 Exposure controls

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (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(>,<)> supplied by us and for the designated use. 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

protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: filter E-(P2)

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

No special precautionary measures necessary.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	No information available.
pH	ca. 0,5 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapor density	No information available.
Relative density	ca. 1,013 g/cm ³ at 20 °C
Water solubility	at 20 °C soluble
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.
Oxidizing properties	No information available.

9.2 Other data

Corrosion	May be corrosive to metals.
-----------	-----------------------------

SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

increased reactivity with:

oxidisable substances, organic solvent, Metals, metal alloys, Alkali metals, Alkaline earth metals,
Ammonia, alkalines, acids

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

Metals, metal alloys
(generation of hydrogen)

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

10.6 Hazardous decomposition products
no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Mixture

Acute oral toxicity

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

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

Acute dermal toxicity

This information is not available.

Skin irritation

Mixture causes skin irritation.

Eye irritation

Mixture causes serious eye irritation.

Sensitisation

This information is not available.

Germ cell mutagenicity

This information is not available.

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

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

Other information

The following applies to soluble barium compounds in general: after swallowing: mucosal irritation, nausea, salivation, vomiting, dizziness, pain, colics, and diarrhoea. Systemic effects include: cardiac dysrhythmias, bradycardia (subdued cardiac activity), rise in blood pressure, shock and circulatory collapse as well as muscular rigidity.

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

Further data:

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

nitric acid

Acute oral toxicity

LDLO human: 430 mg/kg (IUCLID)

Acute inhalation toxicity

LC50 rat: 28 mg/l; 4 h (IUCLID)

Skin irritation

rabbit

Result: Causes severe burns.
(IUCLID)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

SECTION 12. Ecological information

Mixture

12.1 Toxicity

No information available.

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information 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

Additional ecological information

No ecological problems are to be expected when the product is handled and used with due care and attention.

Components

nitric acid

Toxicity to fish

LC50 *Gambusia affinis* (Mosquito fish): 72 mg/l; 96 h (IUCLID)

Biodegradability

The methods for determining the biological degradability are not applicable to inorganic substances.

Henry constant

2482 Pa·m³/mol

Method: (calculated)

(Lit.) Distribution preferentially in air.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONT. NITRIC ACID SOLUTION)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONT. NITRIC ACID SOLUTION)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 3264
14.2 Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONT. NITRIC ACID NOT MORE THAN 5%)
14.3 Class	8
14.4 Packing group	III
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
EmS	F-A S-B

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15. Regulatory information

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

SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Catalogue No.	119774
Product name	Barium standard solution traceable to SRM from NIST Ba(NO ₃) ₂ in HNO ₃ 0.5 mol/l 1000 mg/l Ba CertiPUR®

EU regulations

Major Accident Hazard	96/82/EC
Legislation	Directive 96/82/EC does not apply
Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.

National legislation

Storage class	8 B
---------------	-----

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

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

H271	May cause fire or explosion; strong oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

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

R 8	Contact with combustible material may cause fire.
R35	Causes severe burns.
R36/38	Irritating to eyes and skin.

Training advice

Provide adequate information, instruction and training for operators.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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 characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.