

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 15.07.2018

Version 11.0

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 Ba(NO₃)₂ in
HNO₃ 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 againstIdentified uses Reagent for analysis
For additional information on uses please refer to the Merck Chemicals
portal (www.merckgroup.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 LS-QHC * 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.

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®

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Warning

Hazard statements

H290 May be corrosive to metals.

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

2.3 Other hazards

None known.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

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

nitric acid (>= 1 % - < 5 %)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

7697-37-2	01-2119487297-23-XXXX	Oxidizing liquid, Category 2, H272 Corrosive to metals, Category 1, H290 Acute toxicity, Category 1, H330 Skin corrosion, Category 1A, H314
-----------	-----------------------	--

Barium nitrate (< 1 %)

The concentration stated or, in the absence of such concentrations, the generic concentrations of this Regulation (Table 3.1) or the generic concentrations of Directive 1999/45/EC (Table 3.2), are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.

10022-31-8	*)	Oxidizing solid, Category 2, H272 Acute toxicity, Category 3, H301 Acute toxicity, Category 4, H332 Eye irritation, Category 2, H319
------------	----	---

*) 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.

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 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

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.

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®

Ambient fire may liberate hazardous vapours.

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

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

Do not let product enter drains.

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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

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

Requirements for storage areas and containers

No metal containers.

Storage conditions

Tightly closed.

Recommended storage temperature see product label.

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

Derived No Effect Level (DNEL)

nitric acid (7697-37-2)

Worker DNEL,	Local effects	inhalation	1,3 mg/m ³
longterm			

Predicted No Effect Concentration (PNEC)

nitric acid (7697-37-2)

PNEC no data available

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.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

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

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

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®

properly documented.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	odourless
Odour Threshold	Not applicable
pH	ca. 0,5 at 20 °C
Melting point	No information available.
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	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®

Vapour pressure No information available.

Relative vapour density No information available.

Density ca. 1,013 g/cm³
at 20 °C

Relative density No information available.

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) .

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774

Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

10.3 Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:

Metals, metal alloys

Release of:

nitrous gases, Hydrogen

Violent reactions possible with:

The generally known reaction partners of water.

increased reactivity with:

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

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Metals, metal alloys

(generation of hydrogen)

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

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®

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

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.

Other dangerous properties can not be excluded.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

Handle in accordance with good industrial hygiene and safety practice.

Components

nitric acid

Acute inhalation toxicity

LC50 Rat: > 2,65 mg/l; 4 h ; vapour

OECD Test Guideline 403

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Barium nitrate

Acute oral toxicity

LD50 Rat: 50 - 300 mg/kg

OECD Test Guideline 423

Acute inhalation toxicity

Acute toxicity estimate: 1,6 mg/l; dust/mist

Expert judgement

Skin irritation

Rabbit

Result: No skin irritation

OECD Test Guideline 404

Eye irritation

Rabbit

Result: irritating

OECD Test Guideline 405

Sensitisation

Sensitisation test: Mouse

Result: Does not cause skin sensitisation.

Method: OECD Test Guideline 429

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

Germ cell mutagenicity
Genotoxicity in vitro
Ames test
Escherichia coli/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

Substance(s) in the mixture do(es) not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII, or a PBT/vPvB assessment was not conducted.

12.6 Other adverse effects

Discharge into the environment must be avoided.

Components

nitric acid

Biodegradability

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

Partition coefficient: n-octanol/water

log Pow: -2,3

OECD Test Guideline 107

Bioaccumulation is not expected.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Henry constant

2482 Pa·m³/mol

Method: (calculated)

(Lit.) Distribution preferentially in air.

Barium nitrate

Biodegradability

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

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. (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)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

Not relevant

Air transport (IATA)

14.1 UN number UN 3264
14.2 Proper shipping name CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (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. (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

EU regulations

Major Accident Hazard SEVESO III
Legislation Not applicable

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).

National legislation

Storage class 8B

15.2 Chemical safety assessment

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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 119774
Product name Barium standard solution traceable to SRM from NIST Ba(NO₃)₂ in HNO₃ 0.5 mol/l 1000 mg/l Ba Certipur®

SECTION 16. Other information

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

H272	May intensify fire; oxidizer.
H290	May be corrosive to metals.
H301	Toxic if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Warning

Hazard statements

H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements

Response

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

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®

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

P313 Get medical advice/ attention.

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.