

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 09.12.2015

Version 12.2

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

### 1.1 Product identifier

Catalogue No.	101729
Product name	Barium nitrate for analysis EMSURE® ACS
REACH Registration Number	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.
CAS-No.	10022-31-8

### 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 ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ).
-----------------	---

### 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: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a>

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)

Oxidizing solid, Category 2, H272  
Acute toxicity, Category 3, Oral, H301  
Acute toxicity, Category 4, Inhalation, H332  
Eye irritation, Category 2, H319

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

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

O	Oxidizing	R8
Xn	Harmful	R20
T	Toxic	R25
Xi	Irritant	R36

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

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

## 2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H272 May intensify fire; oxidizer.

H301 Toxic if swallowed.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

*Precautionary statements*

Prevention

P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

Response

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

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

**Reduced labelling (≤125 ml)**

*Hazard pictograms*



*Signal word*

Danger

*Hazard statements*

H301 Toxic if swallowed.

*Precautionary statements*

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Contains: Barium nitrate

*Index-No.* 056-002-00-7

## 2.3 Other hazards

None known.

---

## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	Ba(NO <sub>3</sub> ) <sub>2</sub>	BaN <sub>2</sub> O <sub>6</sub> (Hill)
Index-No.	056-002-00-7	
EC-No.	233-020-5	

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

Molar mass 261,34 g/mol

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

*Chemical Name (Concentration)*

CAS-No.	Registration number	Classification
---------	---------------------	----------------

Barium nitrate (<= 100 % )		
----------------------------	--	--

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.

**Hazardous components (1999/45/EC)**

*Chemical Name (Concentration)*

CAS-No.	Classification
---------	----------------

Barium nitrate (<= 100 % )	
----------------------------	--

10022-31-8	O, Oxidizing; O; R8
------------	---------------------

	Xn, Harmful; Xn; R20
--	----------------------

	T, Toxic; T; R25
--	------------------

	Xi, Irritant; Xi; R36
--	-----------------------

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

**3.2 Mixture**

Not applicable

---

**SECTION 4. First aid measures**

**4.1 Description of first aid measures**

After inhalation: fresh air. If breathing stops: mouth-to-mouth breathing or artificial respiration.  
Oxygen if necessary. Immediately call in physician.

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.

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In  
exceptional cases only, if medical care is not available within one hour, induce vomiting (only in  
persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a  
10% slurry) and consult a doctor as quickly as possible.

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

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.  
irritant effects

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

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

Subsequently administer: Sodium sulfate (1 tablespoon/1/4 l water).

---

**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.

Fire may cause evolution of:

nitrogen oxides

Has a fire-promoting effect due to release of oxygen.

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 inhalation of dusts. Avoid substance contact. 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**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**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.

Work under hood. Do not inhale substance/mixture.

---

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

*Hygiene measures*

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

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

*Storage conditions*

Tightly closed. Keep locked up or in an area accessible only to qualified or authorised persons. Do not store near combustible materials.

Dry.

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**

**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

*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](http://www.kcl.de)).

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

*Other protective equipment*  
protective clothing

*Respiratory protection*  
required when dusts are generated.  
Recommended Filter type: Filter P 3 (acc. to DIN 3181) for solid and liquid particles of toxic and very toxic substances  
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**  
Do not let product enter drains.

---

**SECTION 9. Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

Form	solid
Colour	white
Odour	odourless
Odour Threshold	No information available.
pH	5,0 - 8,0 at 50 g/l 25 °C
Melting point	ca. 592 °C
Boiling point	No information available.
Flash point	No information available.
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable. Flammability (solids)
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	ca.3,2 g/cm <sup>3</sup> at 20 °C
Relative density	No information available.

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

Water solubility	94 g/l at 20 °C Method: OECD Test Guideline 105
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	> 400 °C Method: Tested according to Annex V of Directive 67/548/EEC.
Decomposition temperature	> 550 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	The substance or mixture is classified as oxidizing with the category 2.

**9.2 Other data**

Bulk density 1.900 g/m<sup>3</sup>

---

**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**

Risk of explosion with:

Risk of ignition or formation of inflammable gases or vapours with:

combustible substances, Metals, sulfur, Polyvinylchloride, calcium silicide, charcoal, Aluminium, magnesium, Reducing agents

**10.4 Conditions to avoid**

no information available

**10.5 Incompatible materials**

no information available

**10.6 Hazardous decomposition products**

in the event of fire: See section 5.

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

Catalogue No.	101729
Product name	Barium nitrate for analysis EMSURE® ACS

---

---

**SECTION 11. Toxicological information**

**11.1 Information on toxicological effects**

*Acute oral toxicity*

LD50 Rat: 50 - 300 mg/kg

OECD Test Guideline 423

absorption

*Acute inhalation toxicity*

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

Expert judgement

absorption

*Acute dermal toxicity*

This information is not available.

*Skin irritation*

Rabbit

Result: No skin irritation

OECD Test Guideline 404

*Eye irritation*

Rabbit

Result: irritating

OECD Test Guideline 405

Causes serious eye irritation.

*Sensitisation*

Sensitisation test: Mouse

Result: Does not cause skin sensitisation.

Method: OECD Test Guideline 429

*Germ cell mutagenicity*

*Genotoxicity in vitro*

Ames test

Escherichia coli/Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

*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.



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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

### 11.2 Further information

After absorption:

We have no description of any toxic symptoms.

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.

This substance should be handled with particular care.

---

## SECTION 12. Ecological information

### 12.1 Toxicity

No information available.

### 12.2 Persistence and degradability

#### *Biodegradability*

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

### 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

Discharge into the environment must be avoided.

---

## SECTION 13. Disposal considerations

#### *Waste treatment methods*

See [www.retrologistik.com](http://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 1446
14.2 Proper shipping name	BARIUM NITRATE
14.3 Class	5.1 (6.1)
14.4 Packing group	II
14.5 Environmentally hazardous	--
14.6 Special precautions for user	yes
Tunnel restriction code	E

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

14.1 UN number UN 1446  
14.2 Proper shipping name BARIUM NITRATE  
14.3 Class 5.1 (6.1)  
14.4 Packing group II  
14.5 Environmentally hazardous --  
14.6 Special precautions for user no

Sea transport (IMDG)

14.1 UN number UN 1446  
14.2 Proper shipping name BARIUM NITRATE  
14.3 Class 5.1 (6.1)  
14.4 Packing group II  
14.5 Environmentally hazardous --  
14.6 Special precautions for user yes  
EmS F-A S-Q

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 OXIDIZING LIQUIDS AND SOLIDS  
P8  
Quantity 1: 50 t  
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

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  $\geq 0.1$  % (w/w).

*National legislation*

Storage class 5.1B

15.2 Chemical Safety Assessment

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

Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

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.

H272 May intensify fire; oxidizer.  
H301 Toxic if swallowed.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.

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

R 8 Contact with combustible material may cause fire.  
R20 Harmful by inhalation.  
R25 Toxic if swallowed.  
R36 Irritating to eyes.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H272 May intensify fire; oxidizer.  
H301 Toxic if swallowed.  
H319 Causes serious eye irritation.  
H332 Harmful if inhaled.

Precautionary statements

Prevention



P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

Response

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

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

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

Symbol(s)	 O	Oxidizing
	 T	Toxic
R-phrases(s)	8-20-25-36	Contact with combustible material may cause fire. Harmful by inhalation. Toxic if swallowed. Irritating to eyes.
S-phrases(s)	17-37-45	Keep away from combustible material. Wear suitable gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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



Catalogue No. 101729  
Product name Barium nitrate for analysis EMSURE® ACS

---

EC-No. 233-020-5

EC Label

**Reduced labelling (≤125 ml)**

Symbol(s)  O  
 T

R-phrases 20-25

S-phrases 45

Oxidizing

Toxic

Harmful by inhalation. Toxic if swallowed.

In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

Contains: Barium nitrate

**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](http://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.*