

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 30.04.2015

Version 11.9

SECTION 1. Identification of the substance/mixture and of the company/undertaking**1.1 Product identifier**

Catalogue No.	104439
Product name	Mercury(II) nitrate monohydrate for analysis EMSURE® ACS, Reag. Ph Eur
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.	7783-34-8

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 (www.merckgroup.com).
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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)**

Acute toxicity, Category 2, Inhalation, H330
Acute toxicity, Category 1, Dermal, H310
Acute toxicity, Category 2, Oral, H300
Specific target organ toxicity - repeated exposure, Category 2, H373
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

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

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

T+	Very toxic	R26/27/28
N	Dangerous for the environment	R50/53 R33

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

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word
Danger

Hazard statements

H330 Fatal if inhaled.
H310 Fatal in contact with skin.
H300 Fatal if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P280 Wear protective gloves/ protective clothing.
P273 Avoid release to the environment.

Response

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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

H330 Fatal if inhaled.
H310 Fatal in contact with skin.
H300 Fatal if swallowed.

Precautionary statements

P280 Wear protective gloves/ protective clothing.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

Index-No. 080-002-00-6

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

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Formula $\text{Hg}(\text{NO}_3)_2 \cdot \text{H}_2\text{O}$ $\text{HgN}_2\text{O}_6 \cdot \text{H}_2\text{O}$ (Hill)
Index-No. 080-002-00-6
EC-No. 233-152-3
Molar mass 342,62 g/mol

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

Chemical Name (Concentration)

CAS-No. Registration number Classification

Mercury(II) nitrate monohydrate (<= 100 %)

The concentration stated or, in the absence of such concentrations, the general concentrations of Directive 1999/45/EC are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.

7783-34-8 *)

Acute toxicity, Category 2, H300
Acute toxicity, Category 2, H330
Acute toxicity, Category 1, H310
Specific target organ toxicity - repeated exposure, Category 2, H373
Acute aquatic toxicity, Category 1, H400
Chronic aquatic toxicity, Category 1, H410

*) 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

Mercury(II) nitrate monohydrate (<= 100 %)

The concentration stated or, in the absence of such concentrations, the general concentrations of Directive 1999/45/EC are the percentages by weight of the metallic element calculated with reference to the total weight of the mixture.

7783-34-8 T+, Very toxic; R26/27/28
R33
N, Dangerous for the environment; R50/53

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

General advice

First aider needs to protect himself.

After inhalation: fresh air. If breathing stops: immediately apply artificial respiration, if necessary oxygen. Immediately call in physician.

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

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

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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. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

4.2 Most important symptoms and effects, both acute and delayed

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

Mercury compounds have a cytotoxic and protoplasmatoxic effect. Intoxication symptoms: acute: contact with eye causes severe lesions. Swallowing and inhalation of dusts damages mucous membranes of gastrointestinal and respiratory tract (metallic taste, nausea, vomiting, abdominal pain, bloody diarrhoea, intestinal burns, glottal oedema, aspiration pneumonia); drop in blood pressure, cardiac dysrhythmia, circulatory collapse, and renal failure; chronic: inflammation of the mouth with loss of teeth and mercurial line. The principal signs manifest themselves in the CNS (impaired speech, vision, hearing, and sensitivity, loss of memory, irritability, hallucinations, delirium inter alia).

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.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

mercury vapours, nitrous gases, nitrogen oxides

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 in all circumstances. 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 empty into drains.

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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

Work under hood. Do not inhale substance/mixture.

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

Keep container tightly closed in a dry and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorised persons.

Protected from light.

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

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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 dusts are generated.

Recommended Filter type: combination filter Hg-P3

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 empty into drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	solid
Colour	off-white
Odour	weakly of nitric acid
Odour Threshold	No information available.
pH	No information available.
Melting point	79 °C (anhydrous substance)
Boiling point/boiling range	(decomposition)
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable

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Upper explosion limit	Not applicable
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	4,39 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	at 20 °C soluble, Hydrolysis
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	Not classified as explosive.
Oxidizing properties	none

9.2 Other data

Ignition temperature	Not applicable
Bulk density	ca. 1.200 kg/m ³

SECTION 10. Stability and reactivity

10.1 Reactivity

See section 10.3

10.2 Chemical stability

Sensitivity to light

10.3 Possibility of hazardous reactions

Risk of explosion with:

Acetylene, ethanol, Ammonia, Cyanides, phosphine, phosphorus, sulfur, conc. sulfuric acid

Exothermic reaction with:

Aldehydes, aromatic hydrocarbons, Ketones, unsaturated hydrocarbons, organic nitro compounds

Violent reactions possible with:

strong reducing agents, nonmetals, nonmetallic hydrogen compounds

10.4 Conditions to avoid

Heating (decomposition).

10.5 Incompatible materials

no information available

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10.6 Hazardous decomposition products
in the event of fire: See section 5.

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 26 mg/kg

(anhydrous substance) (RTECS)

absorption

Acute inhalation toxicity

Symptoms: absorption

Acute toxicity estimate: 0,051 mg/l; dust/mist

Expert judgement

Acute dermal toxicity

absorption

Skin irritation

This information is not available.

Eye irritation

This information is not available.

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

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

This information is not available.

11.2 Further information

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Mercury compounds have a cytotoxic and protoplasmatoxic effect. Intoxication symptoms: acute: contact with eye causes severe lesions. Swallowing and inhalation of dusts damages mucous membranes of gastrointestinal and respiratory tract (metallic taste, nausea, vomiting, abdominal pain, bloody diarrhoea, intestinal burns, glottal oedema, aspiration pneumonia); drop in blood pressure, cardiac dysrhythmia, circulatory collapse, and renal failure; chronic: inflammation of the mouth with loss of teeth and mercurial line. The principal signs manifest themselves in the CNS (impaired speech, vision, hearing, and sensitivity, loss of memory, irritability, hallucinations, delirium inter alia).

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

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 0,17 mg/l; 96 h
(anhydrous substance) (ECOTOX Database)

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

Discharge into the environment must be avoided.

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 1625
14.2 Proper shipping name	MERCURIC NITRATE
14.3 Class	6.1
14.4 Packing group	II
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	D/E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

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14.1 UN number UN 1625
14.2 Proper shipping name MERCURIC NITRATE
14.3 Class 6.1
14.4 Packing group II
14.5 Environmentally hazardous yes
14.6 Special precautions for user no

Sea transport (IMDG)

14.1 UN number UN 1625
14.2 Proper shipping name MERCURIC NITRATE
14.3 Class 6.1
14.4 Packing group II
14.5 Environmentally hazardous yes
14.6 Special precautions for user yes
EmS F-A S-A

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 96/82/EC
Legislation Very toxic
1
Quantity 1: 5 t
Quantity 2: 20 t

96/82/EC
Dangerous for the environment
9a
Quantity 1: 100 t
Quantity 2: 200 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work. Take note of Dir 92/85/EEC on the safety and health at work of pregnant workers.

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

Regulation (EC) No 689/2008 concerning the export and import of dangerous chemicals The following ingredients are regulated under Regulation (EC) No 689/2008
Contains: Mercury(II) nitrate monohydrate

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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 6.1B

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.

H300 Fatal if swallowed.
H310 Fatal in contact with skin.
H330 Fatal if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

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

R26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.
R33 Danger of cumulative effects.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H300 + H310 + H330 Fatal if swallowed, in contact with skin or if inhaled
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.
Response
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

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

<i>Symbol(s)</i>	 T+  N	Very toxic Dangerous for the environment
<i>R-phrases(s)</i>	26/27/28-33-50/53	Very toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
<i>S-phrases(s)</i>	13-28-45-60-61	Keep away from food, drink and animal feedingstuffs. After contact with skin, wash immediately with plenty of soap and water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/ Safety data sheets.

EC-No. 233-152-3 EC Label

Reduced labelling (≤125 ml)

<i>Symbol(s)</i>	 T+  N	Very toxic Dangerous for the environment
<i>R-phrases(s)</i>	26/27/28	Very toxic by inhalation, in contact with skin and if swallowed.
<i>S-phrases(s)</i>	28-45	After contact with skin, wash immediately with plenty of soap and water. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

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.