

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 18.03.2019

Version 6.6

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

Catalogue No.	102481
Product name	Chromium(III) nitrate nonahydrate for analysis EMSURE®
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.	7789-02-8

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)**

Oxidizing solid, Category 3, H272
Skin irritation, Category 2, H315
Eye irritation, Category 2, H319
Skin sensitisation, Sub-category 1B, H317
Long-term (chronic) aquatic hazard, Category 2, H411
For the full text of the H-Statements 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

Warning

Hazard statements

H272 May intensify fire; oxidizer.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

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

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

Hazard statements

H317 May cause an allergic skin reaction.

Precautionary statements

P280 Wear protective gloves.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

CAS-No. 7789-02-8

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

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Formula	$\text{Cr}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$	$\text{CrN}_3\text{O}_9 \cdot 9\text{H}_2\text{O}$ (Hill)
EC-No.	236-921-1	
Molar mass	400,15 g/mol	

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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Chromium(III) nitrate nonahydrate ($\geq 80\%$ - $\leq 100\%$)

7789-02-8 *)

Oxidizing solid, Category 3, H272
Skin irritation, Category 2, H315
Eye irritation, Category 2, H319
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Long-term (chronic) aquatic hazard, Category 2, H411

*) 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.

3.2 Mixture

Not applicable

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. Consult a physician.

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, Allergic reactions

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

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

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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.

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

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:
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. 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 dry. 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.

Hygiene measures

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

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7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Dry.

Tightly closed. Do not store near combustible materials.

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).

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Other protective equipment
protective clothing

Respiratory protection
required when dusts are generated.
Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful 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	blue
Odour	of nitric acid
Odour Threshold	No information available.
pH	2 - 3 at 50 g/l 20 °C
Melting point	36 - 37 °C
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	No information available.
Relative density	No information available.

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Water solubility	810 g/l at 20 °C soluble
Partition coefficient: n-octanol/water	Not applicable for inorganic substances
Auto-ignition temperature	No information available.
Decomposition temperature	> 100 °C Elimination of water of crystallisation
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	The substance or mixture is classified as oxidizing with the category 3.

9.2 Other data

Bulk density	ca.710 kg/m ³
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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 ignition or formation of inflammable gases or vapours with:
combustible substances

Violent reactions possible with:
strong reducing agents

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Metals

10.6 Hazardous decomposition products

in the event of fire: See section 5.

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SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 3.250 mg/kg

OECD Test Guideline 401

Acute inhalation toxicity

Symptoms: Possible damages: , mucosal irritations

Acute dermal toxicity

This information is not available.

Skin irritation

Causes skin irritation.

Eye irritation

Causes serious eye irritation.

Sensitisation

Maximisation Test Guinea pig

Result: positive

Method: OECD Test Guideline 406

The value is given in analogy to the following substances: chromium(III) chloride

The product is a skin sensitiser, sub-category 1B.

May cause an allergic skin reaction.

Germ cell mutagenicity

Genotoxicity in vivo

Micronucleus test

Mouse

male

Result: negative

Method: OECD Test Guideline 474

Genotoxicity in vitro

reverse mutation assay

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

The value is given in analogy to the following substances: Chromium(III) nitrate

sister chromatid exchange assay

Chinese hamster ovary cells

Result: negative

Method: OECD Test Guideline 479

The value is given in analogy to the following substances: Chromium(III) nitrate

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Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

Method: OECD Test Guideline 473

The value is given in analogy to the following substances: Chromium(III) nitrate

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 nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

In contrast to chromium(VI) compounds, chromium(III) compounds are not carcinogenic in animal experiments. Only slight absorption (< 1 %) via gastrointestinal tract in comparison with hexavalent chromium. The greater, nonabsorbed part of chromium(III) is eliminated with the faeces.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

static test LC50 Trout: 20,1 mg/l; 96 h

OECD Test Guideline 203

flow-through test LC50 Oncorhynchus mykiss (rainbow trout): 24,1 mg/l; 96 h

OECD Test Guideline 203

The value is given in analogy to the following substances: Chromium(III) nitrate

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 76,9 - 268,6 mg/l; 48 h

The value is given in analogy to the following substances: Chromium(III) nitrate

Toxicity to fish (Chronic toxicity)

NOEC Fish: 0,22 mg/l; 72 d

Analytical monitoring: yes

OECD Test Guideline 210

The value is given in analogy to the following substances: Chromium(III) nitrate

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Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

NOEC Daphnia magna (Water flea): 0,303 - 0,886 mg/l; 21 d

US-EPA

The value is given in analogy to the following substances: Chromium(III) nitrate

12.2 Persistence and degradability

Biodegradability

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

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

Not applicable for inorganic substances

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 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 2720
14.2 Proper shipping name	CHROMIUM NITRATE
14.3 Class	5.1
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

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14.1 UN number	UN 2720
14.2 Proper shipping name	CHROMIUM NITRATE
14.3 Class	5.1
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

Sea transport (IMDG)

14.1 UN number	UN 2720
14.2 Proper shipping name	CHROMIUM NITRATE
14.3 Class	5.1
14.4 Packing group	III
14.5 Environmentally hazardous	yes
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

	SEVESO III
	ENVIRONMENTAL HAZARDS E2 Quantity 1: 200 t Quantity 2: 500 t

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work.
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Regulation (EC) No 1005/2009 on substances not regulated that deplete the ozone layer

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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

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.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Warning

Hazard statements

H272 May intensify fire; oxidizer.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
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H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

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Product name	Chromium(III) nitrate nonahydrate for analysis EMSURE®

Prevention

P273 Avoid release to the environment.

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.

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.

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