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

1.1 Product identifiers

Product name: Chromium(III) nitrate nonahydrate

Product Number: 239259
Brand: SIGALD
REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, 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: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Oxidizing solids (Category 3), H272
Skin irritation (Category 2), H315
Eye irritation (Category 2), H319
Skin sensitization (Sub-category 1B), H317
Long-term (chronic) aquatic hazard (Category 3), H412

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

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word Warning

Hazard statement(s)
H272 May intensify fire; oxidizer.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352 IF ON SKIN: Wash with plenty of 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.

Supplemental Hazard Statements none

Reduced Labeling (<= 125 ml)

Pictogram

Signal Word Warning

Hazard statement(s)
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P302 + P352 IF ON SKIN: Wash with plenty of water.

Supplemental Hazard Statements none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula: CrN_3O_9 · 9H_2O
Molecular weight: 400.15 g/mol
CAS-No.: 7789-02-8
EC-No. : 236-921-1

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium trinitrate</td>
<td>Ox. Sol. 3; Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1B; Aquatic Chronic 3;</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td></td>
<td>H272, H315, H319, H317, H412</td>
<td></td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air.

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

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

If swallowed
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
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Dry sand
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. For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Nitrogen oxides (NOx)
Chromium oxides
Not combustible.
Has a fire-promoting effect due to release of oxygen.

The life science business of Merck operates as MilliporeSigma in the US and Canada
Ambient fire may liberate hazardous vapours.

5.3 **Advice 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.

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

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**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.
For personal protection 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**
For disposal see section 13.

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**SECTION 7: Handling and storage**

7.1 **Precautions for safe handling**

- **Advice on protection against fire and explosion**
  Keep away from open flames, hot surfaces and sources of ignition.

- **Hygiene measures**
  Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
  For precautions see section 2.2.

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

- **Storage conditions**
  Tightly closed. Do not store near combustible materials.

- **Storage class**
  Storage class (TRGS 510): 5.1B: Oxidizing hazardous materials

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

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
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).

- **Full contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0,11 mm
  - Break through time: 480 min
  - Material tested: KCL 741 Dermatril® L

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).

- **Splash contact**
  - Material: Nitrile rubber
  - Minimum layer thickness: 0,11 mm
  - Break through time: 480 min
  - Material tested: KCL 741 Dermatril® L

**Body Protection**
protective clothing

**Respiratory protection**
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.
Recommended Filter type: Filter type 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.

**Control of environmental exposure**
Do not let product enter drains.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Physical state: solid solid

b) Color: No data available

c) Odor: of nitric acid

d) Melting point/freezing point: Melting point/range: 60 °C - lit.

e) Initial boiling point and boiling range: No data available

f) Flammability (solid, gas): The product is not flammable.

g) Upper/lower flammability or explosive limits: No data available

h) Flash point: Not applicable

i) Autoignition temperature: No data available

j) Decomposition temperature: > 100 °C
Elimination of water of crystallization

k) pH: 2 - 3 at 50 g/l at 20 °C

l) Viscosity: Viscosity, kinematic: No data available
Viscosity, dynamic: No data available

m) Water solubility: 810 g/l at 20 °C - soluble

n) Partition coefficient: n-octanol/water: Not applicable for inorganic substances

o) Vapor pressure: No data available

p) Density: No data available
Relative density: No data available

q) Relative vapor density: No data available

r) Particle characteristics: No data available

s) Explosive properties: No data available

t) Oxidizing properties: The substance or mixture is classified as oxidizing with the category 3.

9.2 Other safety information

Solubility in other solvents: Ethanol at 20 °C - soluble
SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

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
Heat.
no information available

10.5 Incompatible materials
Metals

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 3.250 mg/kg
(OECD Test Guideline 401)
Inhalation: No data available
Dermal: No data available

Skin corrosion/irritation
Remarks: No data available

Serious eye damage/eye irritation
Remarks: No data available

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: positive
The product is a skin sensitizer, sub-category 1B.
(OECD Test Guideline 406)
Remarks: Germ cell mutagenicity
Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Remarks: The value is given in analogy to the following substances: Chromium(III)
nitrate
Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Method: OECD Test Guideline 479
Result: negative
The life science business of Merck operates as MilliporeSigma in the US and Canada.

Remarks: The value is given in analogy to the following substances: Chromium(III) nitrate
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Method: OECD Test Guideline 473
Result: negative
Remarks: The value is given in analogy to the following substances: Chromium(III) nitrate
Test Type: Micronucleus test
Species: Mouse
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Endocrine disrupting properties

Product:
Assessment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

RTECS: GB6300000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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)
Remarks: The value is given in analogy to the following substances: Chromium(III) nitrate, Chromium trinitrate.
Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia magna (Water flea) - 76.9 - 268.6 mg/l - 48 h
Remarks: 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
(OECD Test Guideline 210)
Remarks: The value is given in analogy to the following substances: Chromium(III) nitrate

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
NOEC - Daphnia magna (Water flea) - 0.303 - 0.886 mg/l - 21 d
(US-EPA)
Remarks: The value is given in analogy to the following substances: Chromium(III) nitrate

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

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties
Product:
Assessment: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations
13.1 Waste treatment methods
Product
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
14.1 UN number
ADR/RID: 2720
IMDG: 2720
IATA: 2720
14.2 UN proper shipping name
ADR/RID: CHROMIUM NITRATE
IMDG: CHROMIUM NITRATE
IATA: Chromium nitrate

14.3 Transport hazard class(es)
ADR/RID: 5.1  
IMDG: 5.1  
IATA: 5.1

14.4 Packaging group
ADR/RID: III  
IMDG: III  
IATA: III

14.5 Environmental hazards
ADR/RID: no  
IMDG Marine pollutant: no  
IATA: no

14.6 Special precautions for user
Tunnel restriction code : (E)
Further information : No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

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

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  May intensify fire; oxidizer.
H412  Causes skin irritation.
The life science business of Merck operates as MilliporeSigma in the US and Canada.