

## SAFETY DATA SHEET

Version 4.8  
Revision Date 05/24/2016  
Print Date 10/19/2018

---

1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product identifiers

Product name : Chromium(III) nitrate nonahydrate

Product Number : 239259  
Brand : Sigma-Aldrich

CAS-No. : 7789-02-8

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

## 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052

## 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

---

2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Oxidizing solids (Category 3), H272

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

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

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word : Warning

Hazard statement(s)

H272 : May intensify fire; oxidizer.  
H315 : Causes skin irritation.  
H319 : Causes serious eye irritation.

Precautionary statement(s)

P210 : Keep away from heat.  
P220 : Keep/Store away from clothing/ combustible materials.  
P221 : Take any precaution to avoid mixing with combustibles.  
P264 : Wash skin thoroughly after handling.  
P280 : Wear protective gloves/ eye protection/ face protection.  
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

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| P332 + P313 | contact lenses, if present and easy to do. Continue rinsing.                         |
| P337 + P313 | If skin irritation occurs: Get medical advice/ attention.                            |
| P362        | If eye irritation persists: Get medical advice/ attention.                           |
| P370 + P378 | Take off contaminated clothing and wash before reuse.                                |
|             | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. |
| P501        | Dispose of contents/ container to an approved waste disposal plant.                  |

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

|                  |                                                      |
|------------------|------------------------------------------------------|
| Formula          | : $\text{CrN}_3\text{O}_9 \cdot 9\text{H}_2\text{O}$ |
| Molecular weight | : 400.15 g/mol                                       |
| CAS-No.          | : 7789-02-8                                          |
| EC-No.           | : 236-921-1                                          |

#### Hazardous components

| Component                  | Classification                                             | Concentration |
|----------------------------|------------------------------------------------------------|---------------|
| <b>Chromium trinitrate</b> |                                                            |               |
|                            | Ox. Sol. 3; Skin Irrit. 2; Eye Irrit. 2A; H272, H315, H319 | <= 100 %      |

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

## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. 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

## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

### 5.2 Special hazards arising from the substance or mixture

No data available

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

---

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.  
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

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

### 6.4 Reference to other sections

For disposal see section 13.

---

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

For precautions see section 2.2.

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

Keep container tightly closed in a dry and well-ventilated place.

Storage class (TRGS 510): Oxidizing hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

---

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

| Component           | CAS-No.   | Value                                                                                                     | Control parameters | Basis                                                                            |
|---------------------|-----------|-----------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------|
| Chromium trinitrate | 7789-02-8 | TWA                                                                                                       | 0.500000 mg/m3     | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|                     |           | TWA                                                                                                       | 0.500000 mg/m3     | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
|                     |           | TWA                                                                                                       | 0.500000 mg/m3     | USA. ACGIH Threshold Limit Values (TLV)                                          |
|                     | Remarks   | Upper Respiratory Tract irritation<br>Skin irritation<br>Not classifiable as a human carcinogen<br>varies |                    |                                                                                  |
|                     |           | TWA                                                                                                       | 0.500000 mg/m3     | USA. NIOSH Recommended Exposure Limits                                           |
|                     |           | Chromium(III) compounds include soluble chromic salts.<br>See Appendix C                                  |                    |                                                                                  |

|  |  |                                                                                                           |           |                                                                                         |
|--|--|-----------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------|
|  |  | TWA                                                                                                       | 0.5 mg/m3 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|  |  | TWA                                                                                                       | 0.5 mg/m3 | USA. ACGIH Threshold Limit Values (TLV)                                                 |
|  |  | Upper Respiratory Tract irritation<br>Skin irritation<br>Not classifiable as a human carcinogen<br>varies |           |                                                                                         |
|  |  | TWA                                                                                                       | 0.5 mg/m3 | USA. NIOSH Recommended Exposure Limits                                                  |
|  |  | Chromium(III) compounds include soluble chromic salts.<br>See Appendix C                                  |           |                                                                                         |
|  |  | PEL                                                                                                       | 0.5 mg/m3 | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |
|  |  | see Sections 1532.2, 5206 & 8359                                                                          |           |                                                                                         |

## 8.2 Exposure controls

### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Personal protective equipment

#### Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

##### Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

##### Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

#### Body Protection

Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Do not let product enter drains.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

|                                                 |                                                                          |
|-------------------------------------------------|--------------------------------------------------------------------------|
| a) Appearance                                   | Form: crystalline<br>Colour: dark violet                                 |
| b) Odour                                        | No data available                                                        |
| c) Odour Threshold                              | No data available                                                        |
| d) pH                                           | 2.0 - 3.0 at 50 g/l at 20 °C (68 °F)                                     |
| e) Melting point/freezing point                 | Melting point/range: 60 °C (140 °F) - lit.                               |
| f) Initial boiling point and boiling range      | No data available                                                        |
| g) Flash point                                  | Not applicable                                                           |
| h) Evaporation rate                             | No data available                                                        |
| i) Flammability (solid, gas)                    | No data available                                                        |
| j) Upper/lower flammability or explosive limits | No data available                                                        |
| k) Vapour pressure                              | No data available                                                        |
| l) Vapour density                               | No data available                                                        |
| m) Relative density                             | No data available                                                        |
| n) Water solubility                             | No data available                                                        |
| o) Partition coefficient: n-octanol/water       | No data available                                                        |
| p) Auto-ignition temperature                    | No data available                                                        |
| q) Decomposition temperature                    | No data available                                                        |
| r) Viscosity                                    | 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

|              |       |
|--------------|-------|
| Bulk density | 1 g/l |
|--------------|-------|

---

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Heat

### 10.5 Incompatible materials

Organic materials, Reducing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides (NO<sub>x</sub>), Chromium oxides

Other decomposition products - No data available  
In the event of fire: see section 5

---

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 3,250 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

No data available

#### Germ cell mutagenicity

Human

fibroblast

DNA inhibition

Hamster

ovary

Cytogenetic analysis

Hamster

ovary

Sister chromatid exchange

#### Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Chromium trinitrate)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

#### Reproductive toxicity

No data available

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

**Additional Information**

RTECS: GB6300000

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

---

**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

No data available

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data 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**

No data available

---

**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**

Dispose of as unused product.

---

**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 2720      Class: 5.1      Packing group: III  
Proper shipping name: Chromium nitrate  
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

**IMDG**

UN number: 2720      Class: 5.1      Packing group: III      EMS-No: F-A, S-Q  
Proper shipping name: CHROMIUM NITRATE

**IATA**

UN number: 2720      Class: 5.1      Packing group: III  
Proper shipping name: Chromium nitrate

---

**15. REGULATORY INFORMATION****SARA 302 Components**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

|                     | CAS-No.   | Revision Date |
|---------------------|-----------|---------------|
| Chromium trinitrate | 7789-02-8 | 2007-03-01    |

#### **SARA 311/312 Hazards**

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

#### **Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

#### **Pennsylvania Right To Know Components**

|                     | CAS-No.   | Revision Date |
|---------------------|-----------|---------------|
| Chromium trinitrate | 7789-02-8 | 2007-03-01    |

#### **New Jersey Right To Know Components**

|                     | CAS-No.   | Revision Date |
|---------------------|-----------|---------------|
| Chromium trinitrate | 7789-02-8 | 2007-03-01    |

#### **California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

---

## **16. OTHER INFORMATION**

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

|             |                                |
|-------------|--------------------------------|
| Eye Irrit.  | Eye irritation                 |
| H272        | May intensify fire; oxidizer.  |
| H315        | Causes skin irritation.        |
| H319        | Causes serious eye irritation. |
| Ox. Sol.    | Oxidizing solids               |
| Skin Irrit. | Skin irritation                |

#### **HMIS Rating**

|                        |   |
|------------------------|---|
| Health hazard:         | 1 |
| Chronic Health Hazard: | * |
| Flammability:          | 0 |
| Physical Hazard        | 1 |

#### **NFPA Rating**

|                    |    |
|--------------------|----|
| Health hazard:     | 0  |
| Fire Hazard:       | 0  |
| Reactivity Hazard: | 1  |
| Special hazard.I:  | OX |

#### **Further information**

Copyright 2016 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

#### **Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

Version: 4.8

Revision Date: 05/24/2016

Print Date: 10/19/2018