

## 1 Identification

### Product identifier

**Product name:** Chromium (II) fluoride

**Stock number:** 24107

**CAS Number:**  
10049-10-2

**EC number:**  
233-166-0

**Relevant identified uses of the substance or mixture and uses advised against.**

**Identified use:** SU24 Scientific research and development

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

#### Manufacturer/Supplier:

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
Email: tech@alfa.com  
www.alfa.com

**Information Department:** Health, Safety and Environmental Department

#### Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

### Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H311 Toxic in contact with skin.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H332 Harmful if inhaled.

**Hazards not otherwise classified** No information known.

### Label elements

**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

### Hazard pictograms



GHS05 GHS06

### Signal word

Danger

### Hazard statements

H301+H311 Toxic if swallowed or in contact with skin.

H332 Harmful if inhaled.

H314 Causes severe skin burns and eye damage.

### Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

P361 Take off immediately all contaminated clothing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

### WHMIS classification

D2B - Toxic material causing other toxic effects

E - Corrosive material



### Classification system

#### HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 3 Health (acute effects) = 3

FIRE 0 Flammability = 0

REACTIVITY 0 Physical Hazard = 0

### Other hazards

#### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

**Product name: Chromium (II) fluoride**

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**3 Composition/information on ingredients**

**Chemical characterization: Substances**  
**CAS# Description:**  
10049-10-2 Chromium (II) fluoride  
**Identification number(s):**  
**EC number:** 233-168-0

**4 First-aid measures**

**Description of first aid measures**  
**General information** Immediately remove any clothing soiled by the product.  
**After inhalation**  
Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
Seek immediate medical advice.  
**After skin contact**  
Immediately wash with water and soap and rinse thoroughly.  
Rub in calcium gluconate solution or calcium gluconate gel immediately.  
Seek immediate medical advice.  
**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.  
**After swallowing** Seek medical treatment.  
**Information for doctor**  
**Most important symptoms and effects, both acute and delayed**  
Causes severe skin burns.  
Causes serious eye damage.  
**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**5 Fire-fighting measures**

**Extinguishing media**  
**Suitable extinguishing agents** Product is not flammable. Use fire-fighting measures that suit the surrounding fire.  
**Special hazards arising from the substance or mixture**  
If this product is involved in a fire, the following can be released:  
Hydrogen fluoride (HF)  
**Advice for firefighters**  
**Protective equipment:**  
Wear self-contained respirator.  
Wear fully protective impervious suit.

**6 Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation  
**Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.  
**Methods and material for containment and cleaning up:**  
Use neutralizing agent.  
Dispose of contaminated material as waste according to section 13.  
Ensure adequate ventilation.  
**Prevention of secondary hazards:** No special measures required.  
**Reference to other sections**  
See Section 7 for information on safe handling  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

**7 Handling and storage**

**Handling**  
**Precautions for safe handling**  
Keep container tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation at the workplace.  
**Information about protection against explosions and fires:** The product is not flammable  
**Conditions for safe storage, including any incompatibilities**  
**Storage**  
**Requirements to be met by storerooms and receptacles:** No special requirements.  
**Information about storage in one common storage facility:** Do not store together with acids.  
**Further information about storage conditions:**  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
**Specific end use(s)** No further relevant information available.

**8 Exposure controls/personal protection**

**Additional information about design of technical systems:**  
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.  
**Control parameters**  
**Components with limit values that require monitoring at the workplace:**

Chromium (II) compounds, as Cr  
mg/m3  
Belgium TWA 0.5  
Denmark TWA 0.5  
Finland TWA 0.01  
France TWA 0.5  
Ireland TWA 0.5  
Sweden TWA 0.5  
United Kingdom TWA 0.5  
USA PEL 0.5  
  
Fluorides (as F)  
mg/m3  
ACGIH TLV 2.5  
Austria MAK 2.5

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USA

Product name: **Chromium (II) fluoride**

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Belgium TWA	2.5
Finland TWA	2.5
France TWA	2.5
Germany MAK	2.5
Hungary TWA	1; 2-STEL
Netherlands MAC-K	3.5
Norway TWA	0.6
Poland TWA	1; 3-STEL
Sweden NGV	2
Switzerland MAK-W	1.5; 3-KZG-W
United Kingdom TWA	2.5
Russia TWA	2
Denmark TWA	2.5
USA PEL	2.5

**10049-10-2 Chromium (II) fluoride (100.0%)**

PEL (USA)	Long-term value: 2.5 mg/m <sup>3</sup> as F
REL (USA)	Long-term value: 2.5 mg/m <sup>3</sup> as F
TLV (USA)	Long-term value: 2.5 mg/m <sup>3</sup> as F, BEI
EL (Canada)	Long-term value: 2.5 mg/m <sup>3</sup> as F

**Ingredients with biological limit values:**

**10049-10-2 Chromium (II) fluoride (100.0%)**

BEI (USA)	2 mg/L Medium: urine Time: prior to shift Parameter: Fluoride (background, nonspecific)
	3 mg/L Medium: urine Time: end of shift Parameter: Fluoride (background, nonspecific)

**Additional information:** No data

**Exposure controls**

**Personal protective equipment**

**General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Eye protection:**

Tightly sealed goggles

Full face protection

**Body protection:** Protective work clothing.

**9 Physical and chemical properties**

**Information on basic physical and chemical properties**

**General Information**

**Appearance:**

Form:	Crystalline
Color:	Green
Odor:	Odorless
Odor threshold:	Not determined.

**pH-value:** Not applicable.

**Change in condition**

Melting point/Melting range:	1100 °C (2012 °F)
Boiling point/Boiling range:	>1300 °C (>2372 °F)
Sublimation temperature / start:	Not determined

Flash point:	Not applicable
Flammability (solid, gaseous)	Not determined.
Ignition temperature:	Not determined
Decomposition temperature:	Not determined
Auto igniting:	Not determined.

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits:**

Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not applicable.
Density at 20 °C (68 °F):	4.11 g/cm <sup>3</sup> (34.298 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.
Solubility in / Miscibility with	
Water:	Not determined
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
dynamic:	Not applicable.
kinematic:	Not applicable.

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USA


Product name: <b>Chromium (II) fluoride</b>	
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Other information	No further relevant information available.


<b>10 Stability and reactivity</b> <b>Reactivity</b> Contact with acids liberates toxic gas. <b>Chemical stability</b> Stable under recommended storage conditions. <b>Thermal decomposition / conditions to be avoided:</b> Decomposition will not occur if used and stored according to specifications. <b>Possibility of hazardous reactions</b> Contact with acids liberates toxic gas. <b>Conditions to avoid</b> No further relevant information available. <b>Incompatible materials:</b> Oxidizing agents Acids <b>Hazardous decomposition products:</b> Hydrogen fluoride (HF)
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<b>11 Toxicological information</b> <b>Information on toxicological effects</b> <b>Acute toxicity:</b> Harmful if inhaled. Harmful in contact with skin. Harmful if swallowed. Danger through skin absorption. Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach. <b>LD/LC50 values that are relevant for classification:</b> No data <b>Skin irritation or corrosion:</b> Causes severe skin burns. <b>Eye irritation or corrosion:</b> Causes serious eye damage. <b>Sensitization:</b> No sensitizing effects known. <b>Germ cell mutagenicity:</b> No effects known. <b>Carcinogenicity:</b> ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. IARC-3: Not classifiable as to carcinogenicity to humans. <b>Reproductive toxicity:</b> No effects known. <b>Specific target organ system toxicity - repeated exposure:</b> No effects known. <b>Specific target organ system toxicity - single exposure:</b> No effects known. <b>Aspiration hazard:</b> No effects known. <b>Subacute to chronic toxicity:</b> Chromium powder, chromium (II) and chromium (III) compounds may cause nausea, diarrhea, vomiting, skin and eye irritation and pneumoconiosis. Although less likely than Cr(VI) compounds, the NTP considers all chromium to be potentially carcinogenic. Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects. <b>Subacute to chronic toxicity:</b> No effects known. <b>Additional toxicological information:</b> To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
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<b>12 Ecological information</b> <b>Toxicity</b> <b>Aquatic toxicity:</b> No further relevant information available. <b>Persistence and degradability</b> No further relevant information available. <b>Bioaccumulative potential</b> No further relevant information available. <b>Mobility in soil</b> No further relevant information available. <b>Additional ecological information:</b> <b>General notes:</b> Do not allow material to be released to the environment without proper governmental permits. Do not allow undiluted product or large quantities to reach ground water, water course or sewage system. Avoid transfer into the environment. <b>Results of PBT and vPvB assessment</b> <b>PBT:</b> Not applicable. <b>vPvB:</b> Not applicable. <b>Other adverse effects</b> No further relevant information available.
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<b>13 Disposal considerations</b> <b>Waste treatment methods</b> <b>Recommendation</b> Consult state, local or national regulations to ensure proper disposal. <b>Uncleaned packagings:</b> <b>Recommendation:</b> Disposal must be made according to official regulations.
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<b>14 Transport information</b>	
UN-Number DOT, IMDG, IATA	UN3260
UN proper shipping name DOT IMDG, IATA	Corrosive solid, acidic, inorganic, n.o.s. (Chromium (II) fluoride) CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Chromium (II) fluoride)
Transport hazard class(es) DOT	
	
Class Label Class Label	8 Corrosive substances. 8 8 (C2) Corrosive substances 8

Product name: <b>Chromium (II) fluoride</b>	
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IMDG, IATA	
	
Class Label	8 Corrosive substances. 8
Packing group DOT, IMDG, IATA	II
Environmental hazards:	Not applicable.
Special precautions for user Segregation groups	Warning: Corrosive substances Acids
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
DOT Marine Pollutant (DOT): Item:	No
UN "Model Regulation":	UN3260, Corrosive solid, acidic, inorganic, n.o.s. (Chromium (II) fluoride), 8, II

<b>15 Regulatory information</b>	
Safety, health and environmental regulations/legislation specific for the substance or mixture	
GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)	
Hazard pictograms	
	
GHS05 GHS06	
Signal word Danger	
Hazard statements	
H301+H311 Toxic if swallowed or in contact with skin.	
H332 Harmful if inhaled.	
H314 Causes severe skin burns and eye damage.	
Precautionary statements	
P260 Do not breathe dust/fume/gas/mist/vapours/spray.	
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...	
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.	
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
P361 Take off immediately all contaminated clothing.	
P405 Store locked up.	
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.	
National regulations	
This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes.	
SARA Section 313 (specific toxic chemical listings)	
10049-10-2 Chromium (II) fluoride	
California Proposition 65	
Prop 65 - Chemicals known to cause cancer Substance is not listed.	
Prop 65 - Developmental toxicity Substance is not listed.	
Prop 65 - Developmental toxicity, female Substance is not listed.	
Prop 65 - Developmental toxicity, male Substance is not listed.	
Information about limitation of use:	
For use only by technically qualified individuals.	
This product contains chromium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.	
Other regulations, limitations and prohibitive regulations	
Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.	
The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.	
Substance is not listed.	
Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.	
Chemical safety assessment: A Chemical Safety Assessment has not been carried out.	

<b>16 Other information</b>	
Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.	
Department issuing SDS: Global Marketing Department	
Date of preparation / last revision 11/24/2015 / -	
Abbreviations and acronyms:	
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)	
IMDG: International Maritime Code for Dangerous Goods	
DOT: US Department of Transportation	
IATA: International Air Transport Association	
EINECS: European Inventory of Existing Commercial Chemical Substances	
CAS: Chemical Abstracts Service (division of the American Chemical Society)	
HMIS: Hazardous Materials Identification System (USA)	
WHMIS: Workplace Hazardous Materials Information System (Canada)	
LC50: Lethal concentration, 50 percent	
LD50: Lethal dose, 50 percent	
vPvB: very Persistent and very Bioaccumulative	
ACGIH: American Conference of Governmental Industrial Hygienists (USA)	
OSHA: Occupational Safety and Health Administration (USA)	
NTP: National Toxicology Program (USA)	
IARC: International Agency for Research on Cancer	
EPA: Environmental Protection Agency (USA)	