SAINT-GOBAIN

Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS

Printing date: 21 September 2017
Revision: 21 September 2017

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

1.1 Product identifier
- Trade name: Chromium Oxide

1.2 Relevant identified uses of the substance or mixture and uses advised against
No further relevant information available.

1.3 Details of the supplier of the Safety Data Sheet
- Manufacturer/Supplier:
  Saint Gobain Coating Solutions
  One New Bond Street
  Worcester, MA 01615-0137
  (508) 795-5000
  CeramicMaterials@saint-gobain.com

1.4 Emergency telephone number:
- CHEMTREC
  1-800-424-9300 (US/Canada)
  +01 703-527-3887 (International)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
  The product is not classified as hazardous according to OSHA GHS regulations within the United States.
  The product is not classified as hazardous according to the CLP regulation.

  Additional information:
  Not hazardous as delivered. Long term inhalation of product dusts formed during use is harmful.
  0 % of the mixture consists of component(s) of unknown toxicity.

2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
  This product does not have a classification according to the CLP regulation.
  The product is not classified as hazardous according to OSHA GHS regulations within the United States.
- Hazard pictograms Not Regulated
- Signal word Not Regulated
- Hazard-determining components of labelling: None.
- Hazard statements Not Regulated.
- Precautionary statements Not Regulated.

(Cont'd. on page 2)
Trade name: Chromium Oxide

- Additional information:
  Safety data sheet available on request.
- NFPA ratings (scale 0 - 4)
  - Health = 0
  - Fire = 0
  - Reactivity = 0
- HMIS-ratings (scale 0 - 4)
  - Health = 0
  - Fire = 0
  - Reactivity = 0

2.3 Other hazards There are no other hazards not otherwise classified that have been identified.
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

- 3.2 Mixtures

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS: 1308-38-9</th>
<th>EINECS: 215-160-9</th>
<th>dichromium trioxide substance with a Community workplace exposure limit</th>
<th>96-99.9%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EINECS: 231-157-5</td>
<td>Reg.nr.: 01-2119433951-39-XXXX</td>
<td>substance with a Community workplace exposure limit</td>
<td>0,1-3%</td>
</tr>
<tr>
<td></td>
<td>CAS: 7440-47-3</td>
<td>EINECS: 215-160-9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Additional information:
  For the listed ingredient(s), the identity and/or exact percentages are being withheld as a trade secret. Chromium (VI) may be generated during processing and/or applications.

Notable Trace Components (< 0,1% w/w)

<table>
<thead>
<tr>
<th>CAS: 18540-29-9</th>
<th>chromium (VI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC number: 606-053-1</td>
<td>Carc. 1B, H350</td>
</tr>
<tr>
<td>Index number: 024-017-00-8</td>
<td>Aquatic Acute 1, H400; Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

- 4.1 Description of first aid measures
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact:
    - Brush off loose particles from skin.
    - Immediately rinse with water.
    - If skin irritation is experienced, consult a doctor.

(Cont'd. on page 3)
SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing agents:
The product is not flammable.
Use fire extinguishing methods suitable to surrounding conditions.
For safety reasons unsuitable extinguishing agents: None.
5.2 Special hazards arising from the substance or mixture
Formation of toxic gases is possible during heating or in case of fire.
5.3 Advice for firefighters
• Protective equipment:
  Wear self-contained respiratory protective device.
  Wear fully protective suit.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Ensure adequate ventilation
Avoid formation of dust.
Do not breathe dust.
6.2 Environmental precautions
Avoid release to the environment.
6.3 Methods and material for containment and cleaning up
Pick up mechanically.
Dispose of the material collected according to regulations.
Send for recovery or disposal in suitable receptacles.
6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.

(Cont’d. from page 2)

• After eye contact:
  Remove contact lenses if worn, if possible.
  Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
• After swallowing:
  Rinse out mouth and then drink plenty of water.
  Do not induce vomiting; call for medical help immediately.
4.2 Most important symptoms and effects, both acute and delayed
  Slight irritating effect on skin and mucous membranes.
  Slight irritant effect on eyes.
  Nausea in case of ingestion.
  May cause gastro-intestinal irritation if ingested.
  Allergic reactions
• 4.3 Indication of any immediate medical attention and special treatment needed
  No further relevant information available.
SECTION 7: Handling and storage

7.1 Precautions for safe handling
Use only in well ventilated areas.
Prevent formation of dust.
Any unavoidable deposit of dust must be regularly removed.
Information about fire - and explosion protection: No special measures required.

7.2 Conditions for safe storage, including any incompatibilities
Storage:
Requirements to be met by storerooms and receptacles:
Store in cool, dry conditions in well sealed receptacles.
Information about storage in one common storage facility:
Store away from foodstuffs.
Do not store together with acids.
Do not store together with alcalis (caustic solutions).

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Substance (CAS-Number)</th>
<th>Limit Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1308-38-9 dichromium trioxide</td>
<td></td>
</tr>
<tr>
<td>1308-38-9</td>
<td>Long-term value: 2 mg/m³ as Cr</td>
</tr>
<tr>
<td>PEL (USA)</td>
<td>Long-term value: 0,5 mg/m³ as Cr</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Long-term value: 0,5 mg/m³ as Cr; See Pocket Guide App. C</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>Long-term value: 0,5 mg/m³ as Cr</td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>Long-term value: 0,5 mg/m³ as Cr</td>
</tr>
</tbody>
</table>

7440-47-3 chromium

<table>
<thead>
<tr>
<th>Substance (CAS-Number)</th>
<th>Limit Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-47-3</td>
<td></td>
</tr>
<tr>
<td>7440-47-3</td>
<td>Long-term value: 2 mg/m³ as Cr</td>
</tr>
<tr>
<td>PEL (USA)</td>
<td>Long-term value: 1* 0,5** mg/m³ as Cr; See Pocket Guide App. C</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>Long-term value: 0,5* mg/m³ as Cr; See Pocket Guide App. C</td>
</tr>
</tbody>
</table>

(Cont'd. on page 5)
Trade name: Chromium Oxide

<table>
<thead>
<tr>
<th>TLV (USA)</th>
<th>Long-term value: 0,5 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL (Canada)</td>
<td>Long-term value: 0,5 mg/m³ as metal</td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>Long-term value: 0,05 mg/m³</td>
</tr>
<tr>
<td>18540-29-9 chromium (VI)</td>
<td>May be generated during processing.</td>
</tr>
<tr>
<td></td>
<td>2,5 µg/m³ Action Level: 5 µg/m³ TWA</td>
</tr>
</tbody>
</table>

- **DNELs:** No further relevant information available.
- **PNECs:** No further relevant information available.

8.2 Exposure controls

- **Engineering measures:** Provide adequate ventilation.
- **Personal protective equipment:**
  - **General protective and hygienic measures:**
    The usual precautionary measures are to be adhered to when handling chemicals.
    Keep away from foodstuffs, beverages and feed.
    Do not breathe dust.
    Avoid contact with the eyes.
    Avoid close or long term contact with the skin.
  - **Respiratory protection:**
    Suitable respiratory protective device recommended.
    Wear appropriate NIOSH or EU approved respirator when ventilation is inadequate and occupational exposure limits are exceeded.
    Particulate mask should filter at least 99% of airborne particles.
  - **Protection of hands:**
    Wear gloves for the protection against mechanical hazards according to NIOSH or EN 388.
- **Eye protection:**
  - **Body protection:** Protective work clothing
  - **Limitation and supervision of exposure into the environment:** Avoid release to the environment.
  - **Risk management measures:** See Section 7 for additional information.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- **Appearance**
  - **Form:** Powder
  - **Colour:** Dark green
  - **Odour:** Odourless
  - **Odour threshold:** Not determined.
  - **pH-value:** Not applicable.
Trade name: Chromium Oxide

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point/freezing point</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Auto/Self-ignition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Upper:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Non-oxidising.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Density</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with water</td>
<td>Insoluble.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Dynamic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Kinematic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>9.2 Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
  - Thermal decomposition / conditions to be avoided:
    No decomposition if used and stored according to specifications.
- **10.3 Possibility of hazardous reactions**
  Reacts with acids.
  Reacts with alkali (lyes).
  Reacts with oxidising agents.
  As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
- **10.4 Conditions to avoid**
  Avoid acids.
  Store away from oxidising agents.
- **10.5 Incompatible materials** Oxidisers, strong bases, strong acids

(Cont'd. on page 7)
10.6 Hazardous decomposition products

Toxic metal compounds

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity: Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:

| Oral LD50 | >5000 mg/kg (rat) (estimated) |

Primary irritant effect

- Skin corrosion/irritation: Based on available data, the classification criteria are not met.
- Serious eye damage/irritation: Based on available data, the classification criteria are not met.
- Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.

Carcinogenic categories

- IARC (International Agency for Research on Cancer):
  None of the ingredients are listed.
- NTP (National Toxicology Program):
  None of the ingredients are listed.
- OSHA-Ca (Occupational Safety & Health Administration):
  None of the ingredients are listed.

Probable routes of exposure:

- Ingestion
- Inhalation
- Eye contact
- Skin contact

Repeated dose toxicity:

- Repeated or long-term inhalation of product dusts may cause pulmonary disease.
- Germ cell mutagenicity: Based on available data, the classification criteria are not met.
- Carcinogenicity: Based on available data, the classification criteria are not met.
- Reproductive toxicity: Based on available data, the classification criteria are not met.
- STOT-single exposure: Based on available data, the classification criteria are not met.
- STOT-repeated exposure: Based on available data, the classification criteria are not met.
- Aspiration hazard: Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

- Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability

- No further relevant information available.

12.3 Bioaccumulative potential

- No further relevant information available.

12.4 Mobility in soil

- No further relevant information available.

Additional ecological information:

- General notes: Generally not hazardous for water
### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
  - **Recommendation**
    The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

- **Uncleaned packaging:**
  - **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

<table>
<thead>
<tr>
<th>14.1 UN-Number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>Not Regulated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.2 UN proper shipping name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>Not Regulated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.3 Transport hazard class(es)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>Class Not Regulated</td>
</tr>
<tr>
<td></td>
<td>Label -</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.4 Packing group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT, ADR, IMDG, IATA</td>
<td>Not Regulated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.5 Environmental hazards:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine pollutant:</td>
<td>No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.6 Special precautions for user</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
**SECTION 15: Regulatory information**

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - **United States (USA)**
  - **SARA**
    - **Section 355 (extremely hazardous substances):**
      None of the ingredients are listed.
    - **Section 313 (Specific toxic chemical listings):**
      All ingredients are listed.
  - **TSCA (Toxic Substances Control Act):**
    All ingredients are listed.
    - **Proposition 65 (California):**
      - **Chemicals known to cause cancer:**
        Present in trace quantities.
      - **18540-29-9 chromium (VI)**
      - **Chemicals known to cause reproductive toxicity for females:**
        Present in trace quantities.
      - **18540-29-9 chromium (VI)**
      - **Chemicals known to cause reproductive toxicity for males:**
        Present in trace quantities.
      - **18540-29-9 chromium (VI)**
      - **Chemicals known to cause developmental toxicity:**
        Present in trace quantities.
      - **18540-29-9 chromium (VI)**
  - **Carcinogenic Categories**
  - **EPA (Environmental Protection Agency)**
    | Substance ID | Substance Name | Classification |
    |--------------|----------------|----------------|
    | 1308-38-9 | dichromium trioxide | D, CBD |
    | 7440-47-3 | chromium | D |
  - **IARC (International Agency for Research on Cancer)**
    None of the ingredients are listed.
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
    None of the ingredients are listed.
  - **Canadian Domestic Substances List (DSL)**
    All ingredients are listed.
  - **Other regulations, limitations and prohibitive regulations**
    - **Substances of very high concern (SVHC) according to REACH, Article 57**
      None of the ingredients are listed.

(Cont'd. on page 10)
Trade name: Chromium Oxide

**SECTION 16: Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Relevant phrases**
H350 May cause cancer.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

**Abbreviations and acronyms:**
ADR: 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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bio-accumulative, Toxique
SVHC: Substances of Very High Concern
vPvB: very Persistent and very Bioaccumulative

**Sources**
Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Safety Data Sheets, Individual Manufacturers

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Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com

15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.