Section 1 - Product and Company Information

Product Name                  CHROMIUM HEXACARBONYL
Product Number               27091
Brand                        FLUKA

Company                      Sigma-Aldrich Canada, Ltd
Address                      2149 Winston Park Drive
                             Oakville ON L6H 6J8 CA
Technical Phone:             9058299500
Fax:                         9058299292
Emergency Phone:             800-424-9300

Section 2 - Composition/Information on Ingredient

Substance Name                                         CAS #      SARA 313
CHROMIUM HEXACARBONYL                                   13007-92-6 Yes

Formula         Cr(CO)6
Synonyms        Chromium carbonyl (OC-6-11) (9CI) * Chromium hexacarbonyl * Hexacarbonyl chromium
RTECS Number:   GB5075000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Toxic.
May cause cancer. Heating may cause an explosion. Harmful if swallowed.

HMIS RATING
HEALTH: 2*
FLAMMABILITY: 0
REACTIVITY: 1

NFPA RATING
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If breathing becomes difficult,
call a physician.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

EXPLOSION HAZARDS
Container explosion may occur under fire conditions.

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS
Heat and light sensitive.

Section 8 - Exposure Controls / PPE
ENGINEERING CONTROLS
Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). 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.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

<table>
<thead>
<tr>
<th>Country</th>
<th>Source</th>
<th>Type</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>USA</td>
<td>ACGIH</td>
<td>TWA</td>
<td>0.05 MG(CR)/M3</td>
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<tr>
<td>USA</td>
<td>MSHA Standard-air</td>
<td>TWA</td>
<td>0.5 MG(CR)/M3</td>
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<tr>
<td>USA</td>
<td>NIOSH</td>
<td>TWA</td>
<td>0.001 MG(CR)/M3</td>
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Section 9 - Physical/Chemical Properties

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<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
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<tbody>
<tr>
<td>Appearance</td>
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<tr>
<td>Color</td>
<td>Very faintly beige</td>
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<td>Form</td>
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<tr>
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<td>MP/MP Range</td>
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<tr>
<td>Freezing Point</td>
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<tr>
<td>Vapor Pressure</td>
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<td>36 °C</td>
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<td>Vapor Density</td>
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<td>Odor Threshold</td>
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<td>Volatile%</td>
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<td>Solvent Content</td>
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<td>Miscellaneous Data</td>
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<tr>
<td>Solubility</td>
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</table>
Section 10 - Stability and Reactivity

STABILITY

Conditions of Instability: May explode when heated.
Conditions to Avoid: Light. Heat.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Chromium (VI) oxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

CONDITIONS AGGRAVATED BY EXPOSURE

May be fatal if enters bloodstream.

TOXICITY DATA

Oral
Rat
230 mg/kg
LD50

Oral
Mouse
150 mg/kg
LD50

Intravenous
Mouse
30 MG/KG
LD50

CHRONIC EXPOSURE - CARCINOGEN

Species: Rat
Route of Application: Implant
Dose: 75 MG/KG
Result: Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Lungs, Thorax, or Respiration:Tumors.
Tumorigenic:Tumors at site or application.

ACGIH CARCINOGEN LIST

Rating: A1

CHRONIC EXPOSURE - MUTAGEN

Species: Hamster
Dose: 2 GM/L  
Cell Type: lung  
Mutation test: Cytogenetic analysis

Section 12 – Ecological Information

No data available.

Section 13 – Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
  Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations. (DN) Requires special label: "Contains a substance which is regulated by Danish work environmental law due to the risk of carcinogenic properties."

Section 14 – Transport Information

DOT
  Proper Shipping Name: Metal carbonyls, solid, n.o.s.  
  UN#: 3466  
  Class: 6.1  
  Packing Group: Packing Group III  
  Hazard Label: Toxic substances.  
  PIH: Not PIH

IATA
  Proper Shipping Name: Metal carbonyls, solid, n.o.s.  
  IATA UN Number: 3466  
  Hazard Class: 6.1  
  Packing Group: III

Section 15 – Regulatory Information

EU ADDITIONAL CLASSIFICATION
  Symbol of Danger: T  
  Indication of Danger: Toxic.  
  R: 45-5-22  
  Risk Statements: May cause cancer. Heating may cause an explosion. Harmful if swallowed.  
  S: 53-45-36  
  Safety Statements: Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing.

US CLASSIFICATION AND LABEL TEXT
  Indication of Danger: Toxic.  
  Risk Statements: May cause cancer. Heating may cause an explosion. Harmful if swallowed.  
  Safety Statements: Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing.  

UNITED STATES REGULATORY INFORMATION
  SARA LISTED: Yes  
  DEMINIMIS: 0.1 %  
  NOTES: This product is subject to SARA section 313 reporting
requirements - chromium compounds.
TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65
California Prop - 65: This product is or contains chemical(s) known to the state of California to cause cancer.

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No
NDSL: Yes

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.