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## 1. Product and Company Identification

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Trade Name: Cobalt Chromium Alloy  
Chemical Formula: CoCr  
Recommended Use: Scientific research and development

Manufacturer/Supplier: Stanford Advanced Materials  
Address : 23661 Birtcher Dr.,  
Lake Forest, CA 92630 U.S.A.

24-Hour Emergency Contact: (949) 407-8904  
(This telephone number is available  
24 hours per day, 7 days per week.)

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## 2. Hazards Identification

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Signal Word: Danger



Hazard Statements:

- H228: Flammable solid
- H302: Harmful if swallowed
- H317: May cause an allergic skin reaction
- H319: Causes serious eye irritation
- H330: Fatal if inhaled
- H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
- H341: Suspected of causing genetic defects
- H350: May cause cancer
- H360: May damage fertility or the unborn child
- H413: May cause long lasting harmful effects to aquatic life

Precautionary Statements:

- P202: Do not handle until all safety precautions have been read and understood
- P210: Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking
- P240: Ground/bond container and receiving equipment
- P241: Use explosion-proof electrical/ ventilating/ lighting/ equipment
- P260: Do not breathe dust/fume/gas/mist/vapors/spray
- P264: Wash face, hands and any exposed skin thoroughly after Handling
- P270: Do not eat, drink, or smoke when using this product
- P271: Use only outdoors or in a well-ventilated area
- P272: Contaminated work clothing must not be allowed out of the workplace
- P273: Avoid release to the environment
- P280: Wear protective gloves/ protective clothing/ eye protection/ face protection
- P281: Use personal protective equipment as required

P284: Wear respiratory protection  
 P285: In case of inadequate ventilation wear respiratory protection  
 P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 P301+P330: IF SWALLOWED: Rinse mouth  
 P302 + P352: IF ON SKIN: Wash with plenty of soap and water  
 P304 + P341+P312: IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell  
 P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P308 + P313: IF exposed or concerned: Get medical advice/ attention  
 P333 + P313: If skin irritation or rash occurs: Get medical advice/ attention  
 P337 + P313: If eye irritation persists: Get medical advice/ attention  
 P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER/ doctor  
 P363: Wash contaminated clothing before reuse  
 P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-Resistant foam to extinguish  
 P403+P233: Store in a well-ventilated place. Keep container tightly closed  
 P405: Store locked up  
 P501: Dispose of contents/container in accordance with local/regional/national/international regulations

HMIS Health Ratings (0-4):

Health:	1
Flammability:	3
Physical:	3

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### 3. Composition

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Chemical Family:	Alloy
Additional Names:	Chromium Cobalt Alloy

Cobalt (Co):	
Percentage:	0-100 wt%
CAS #:	7440-48-4
EC #:	231-158-0

Chromium (Cr):	
Percentage:	0-100 wt%
CAS #:	7440-47-3
EC #:	231-157-5

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### 4. First Aid Procedures

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General Treatment:	Seek medical attention if symptoms persist.
Special Treatment:	None
Important Symptoms:	N/A

Inhalation:	Remove victim to fresh air. Supply oxygen if breathing is difficult. Seek medical attention.
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Ingestion:	Rinse mouth with water. Do not induce vomiting. Seek medical attention.
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Skin:	Wash affected area with mild soap and water. Remove any contaminated clothing. Seek medical attention.
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Eyes: Flush eyes with water, blinking often for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention.

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#### 5. Firefighting Measures

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Flammability: Non-flammable, except as powder

Extinguishing Media: No special restrictions – use suitable extinguishing agent for surrounding material and type of fire. Do not use water for metal fires – use CO<sub>2</sub>, sand, extinguishing powder.

Spec. Fire Fighting Procedure: Use full-face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. See section 10 for decomposition products.

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#### 6. Accidental Release Measures

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If Material Is Released/Spilled: Wear appropriate respiratory and protective equipment specified in special protection information. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for disposal. Take care not to raise dust.

Environmental Precautions: Isolate runoff to prevent environmental pollution.

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#### 7. Handling and Storage

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Handling Conditions: Wash thoroughly after handling.

Storage Conditions: Store in a cool dry place in a tightly sealed container. Store apart from materials and conditions listed in section 10.

Work/Hygienic Maintenance: Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

Ventilation: Provide sufficient ventilation to maintain concentration at or below threshold limit.

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#### 8. Exposure Controls and Personal Protection

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Permissible Exposure Limits: 0.5 mg/m<sup>3</sup> as Cr, long-term value  
0.02 mg/m<sup>3</sup> as Co, long-term value

Threshold Limit Value: 0.5 mg/m<sup>3</sup> as Cr, long-term value  
0.02 mg/m<sup>3</sup> as Co, long-term value

Special Equipment: None

Respiratory Protection: Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards

Protective Gloves: Nitrile rubber, NBR  
Check gloves prior to each use

Eye Protection: Safety glasses or goggles

Body Protection: Protective work clothing. Wear close-toed shoes and long sleeves/pants.

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### 9. Physical and Chemical Characteristics

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Color	Grey
Form:	Powder, Granules, Pellets, Sputtering target, Custom parts
Odor:	Odorless
Water Solubility:	Insoluble
Boiling Point:	N/A
Melting Point:	N/A
Flash Point:	N/A
Autoignition Temperature:	N/A
Density:	N/A
Molecular weight:	N/A

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### 10. Reactivity

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Stability:	Stable under recommended storage conditions
Reacts With:	Strong acids, Strong oxidizing agents
Incompatible Conditions:	Exposure to air, Protect against electrostatic charges
Hazardous Decomposition Products:	Metal oxide fume

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### 11. Toxicological Information

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Potential Health Effects:	
Eyes:	May cause irritation
Skin:	May cause irritation
Ingestion:	May cause irritation
Inhalation:	May cause irritation
Chronic:	N/A
Signs & Symptoms:	N/A
Aggravated Medical Conditions:	N/A
Median Lethal Dose:	N/A
Carcinogen:	N/A

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### 12. Ecological Information

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Aquatic Toxicity:	May cause long lasting harmful effects to aquatic life
Persistent Bioaccumulation Toxicity:	N/A
Very Persistent, Very Bioaccumulative:	N/A
Notes:	N/A

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### 13. Disposal Considerations

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Dispose of in accordance with local, state, national, and international regulations.

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#### 14. Transportation Data

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Hazardous: Hazardous as powder only



Hazard Class: 4.1 Flammable solids, self-reactive substances and solid desensitized explosives

Packing Group: II

UN Number: UN3089

Proper Shipping Name: Metal powders, flammable, n.o.s. (Cobalt Chromium Alloy)

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#### 15. Regulatory Information

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Sec 302 Extremely Hazardous: No

Sec 304 Reportable Quantities: N/A

Sec 313 Toxic Chemicals: Yes

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#### 16. Other Information

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This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.

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