1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION:

Product Name: Cobalt
Date of Prep: 18 December 2006

2. COMPOSITION/INFORMATION ON INGREDIENTS:

<table>
<thead>
<tr>
<th>CHEMICAL INGREDIENT NAME</th>
<th>CAS NUMBER</th>
<th>EC NUMBER</th>
<th>% BY WT.</th>
<th>OSHA</th>
<th>ACGIH</th>
<th>HAZARD SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt</td>
<td>7440-48-4</td>
<td>2311580</td>
<td>99+</td>
<td>PEL 0.1mg/m³ for 8h</td>
<td>TWA 0.02mg/m³</td>
<td>None</td>
</tr>
</tbody>
</table>


4. FIRST AID MEASURES:

Inhalation: Remove to fresh air.
Skin Contact: Wash with soap and water.
Eye Contact: Immediately flush with water for a minimum of 15 minutes.
Ingestion: Get medical attention.

After following first aid measures, seek medical attention.

5. FIRE-FIGHTING MEASURES:

Flammable Properties: Not Applicable
Extinguishing Media: Carbon dioxide – Do not use water
Unique Aspects Contributing To a Fire: Not Applicable
Special Fire Fighting Procedures: Not Applicable

Note: As in any fire, wear self-contained breathing apparatus, and full protective gear.

6. ACCIDENTAL RELEASE MEASURES: Sweep up, place in a bag and hold for waste disposal.

7. HANDLING AND STORAGE: Do not breath dust.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

Handle in accordance with good laboratory practices.

Respiratory Protection: Not normally needed. If exposure limits are exceeded, use approved respirator.
Eye Protection: Safety glasses with side shields.
Skin Protection: Neoprene or other chemical resistant gloves. Disposable nitrile are acceptable for light intermittent exposure.
Engineering Controls: No special requirements. Handle in an area with good general room ventilation.
9. PHYSICAL AND CHEMICAL PROPERTIES:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Light grey metal</td>
</tr>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/E</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>N/E</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>N/E</td>
</tr>
<tr>
<td>Vapor Density (air=1)</td>
<td>N/E</td>
</tr>
<tr>
<td>Odor</td>
<td>N/A</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>N/E</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>N/E</td>
</tr>
<tr>
<td>pH</td>
<td>N/A</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>2870°C</td>
</tr>
<tr>
<td>Melting Point</td>
<td>1495°C</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>8.93 g/mL</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Insoluble</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY:

- Hazardous Polymerization: X Will Not Occur  □ May Occur
- Stability: Stable

<table>
<thead>
<tr>
<th>Hazardous Decomposition/Combustion Products:</th>
<th>Conditions &amp; Materials to Avoid:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Established</td>
<td>Oxidizing agents, strong mineral acids</td>
</tr>
</tbody>
</table>

11. TOXICOLOGICAL INFORMATION:

- Primary Route(s) of Exposure Under Normal Use:
  - Target Organ(s): Eyes, kidneys
  - LD₅₀ (rat) = 6171 mg/kg (Oral)
  - Acute Effects: Not Established
  - LD₅₀ (rat) = 100 mg/kg (Intra-peritoneal)
  - Chronic Effects: Carcinogen
  - Rat = 126 mg/kg (Intramuscular)
  - Rabbit = 75 mg/kg (Implant)

- Other Information: Chemical Ingredient(s) not classified as carcinogen(s) by OSHA, IARC, NTP, ACGIH, or California.

12. ECOLOGICAL INFORMATION:

- No data available.

13. DISPOSAL CONSIDERATIONS:

- Contact a licensed waste disposal service. Observe all federal, state and local environmental regulations.

14. TRANSPORT INFORMATION:

- U.S. DOT: Shipping Name: None
- Hazard Class: Non-hazardous for transport
- UN/NA #: 
- Packing Group #: 
- IATA/ICAO: Rated Group 2B
- Non-hazardous for air transport

15. REGULATORY INFORMATION:

- EU Risk/Safety Phrases: Harmful

- U.S. TOSCA: Inventory item

- Canada: This product has been classified according to the hazard criteria of the CPR and this MSDS contains all the information required by the CPR.

16. OTHER INFORMATION:

- U.S. EPA SARA:
  - 313 Chemicals Yes
  - CERCLA RQ Not listed
  - 4= Severe Hazard
  - 3=Serious Hazard
  - 2=Moderate Hazard
  - 1=Slight Hazard
  - 0=Minimal Hazard

- National Fire Protection Association Rating
  - HEALTH 3
  - FLAMMABILITY 0
  - REACTIVITY 0
  - OTHER

Notes: Not Established (NE) means a value has not been set or there is no information available. Not Applicable (NA) means that the topic is not pertinent.

The information contained herein has been compiled from data presented in various technical sources believed to be accurate. Waters makes no warranties and assumes no liability in connection with the use of this information. It is the user’s responsibility to determine the suitability of this information and to assure the adoption of necessary precautions.