### CAUTIONARY RESPONSE INFORMATION

**Common Synonyms**
- Cobalt formate
- Cobalt diformate

**Cobalt formate**

**Solid**
- Red
- Sinks and mixes with water.

**Water**
- Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes.

**Pollution**
- Notify operators of nearby water intakes.

### 1. CORRECTIVE RESPONSE ACTIONS

- Dike and disperse
- Stop discharge
- Collection Systems: Dredge

### 2. CHEMICAL DESIGNATIONS

- CG Compatibility Group: Not listed
- Formula: Co(HCOO)₂·2H₂O
- IMO/UN Designation: Not listed
- DOT ID No.: Not listed
- CAS Registry No.: 51374
- NAERG Guide No.: 171
- Standard Industrial Trade Classification: 51374

### 3. HEALTH HAZARDS

#### 3.1 Personal Protective Equipment
- NIOSH approved respirator if needed; rubberized fabric gloves, chemical dust goggles.

#### 3.2 Symptoms Following Exposure
- **EYES:** Causes burns. **SKIN:** Can cause irritation.

#### 3.3 Treatment of Exposure
- **EYES:** Hold eyelids open and flush with plenty of water. **SKIN:** Wash thoroughly.

#### 3.4 TLV-Ceiling
- Not listed

#### 3.5 TLV-STEL
- Not listed

#### 3.6 TLV-TWA
- Not listed

#### 3.7 Toxicity by Inhalation
- Currently not available

#### 3.8 Toxicity by Ingestion
- Currently not available

#### 3.9 Chronic Toxicity
- Currently not available

#### 3.10 Vapor (Gas) Irritant Characteristics
- Recently not available

#### 3.11 Liquid or Solid Characteristics
- Currently not available

#### 3.12 Odor Threshold
- Currently not available

#### 3.13 IDLH Value
- 20 mg/m³ as Cobalt

#### 3.14 OSHA PEL-TWA
- 0.1 mg/m³ as cobalt

#### 3.15 OSHA PEL-STEL
- Not listed

#### 3.16 OSHA PEL-Ceiling
- Not listed

#### 3.17 EPA AEGL
- Not listed

### 4. FIRE HAZARDS

- **Flash Point:** Currently not available
- **Flammable Limits in Air:** Currently not available
- **Fire Extinguishing Agents:** Water
- **Fire Extinguishing Agents Not to Be Used:** Currently not available
- **Special Hazards of Combustion Products:** Not listed

#### 4.1 Behavior in Fire
- Decomposes at 175°C

#### 4.2 Auto Ignition Temperature
- Not listed

#### 4.3 Adiabatic Flame Temperature
- Not listed

#### 4.4 Stoichiometric Air to Fuel Ratio
- Not listed

#### 4.5 Minimum Oxygen Concentration for Combustion
- Not listed

### 5. CHEMICAL REACTIVITY

- **Reactivity with Water:** No reaction
- **Reactivity with Common Materials:** No reaction
- **Stability During Transport:** Stable
- **Neutralizing Agents for Acids and Caustics:** Not listed
- **Polymerization:** Not pertinent
- **Inhibitor of Polymerization:** Not pertinent

### 6. WATER POLLUTION

- **Aquatic Toxicity:** 10 ppm lethal concentration for sticklebacks (as Co)
- **Fish Food Organisms:** Affected by concentration of 0.5 ppm Co.
- **Waterfowl Toxicity:** Not currently available
- **Biological Oxygen Demand (BOD):** Not currently available
- **Food Chain Concentration Potential:** Microorganisms can concentrate cobalt in water up to 1000 times.
- **GESAMP Hazard Profile:** Not listed

### 7. SHIPPING INFORMATION

- **Grades of Purity:** Not currently available
- **Storage Temperature:** Ambient
- **Inert Atmosphere:** Currently not available
- **Venting:** Not currently available
- **IMO Pollution Category:** Not currently available
- **Ship Type:** Not currently available
- **Barge Hull Type:** Not currently available

### 8. HAZARD CLASSIFICATIONS

- **49 CFR Classification:** Not listed
- **49 CFR Class:** Not pertinent
- **49 CFR Package Group:** Not listed
- **Marine Pollutant:** No
- **NFPA Hazard Classification:** Not listed
- **EPA Reportable Quantity:** 1000 pounds
- **EPA Pollution Category:** C
- **RCRA Waste Number:** Not listed
- **EPA FWPCA List:** Yes

### 9. PHYSICAL & CHEMICAL PROPERTIES

- **Physical State at 15°C and 1 atm:** Solid
- **Molecular Weight:** 148.98 anhydrous; 185.00 dihydrate
- **Boiling Point at 1 atm:** Becomes anhydrous at 140°C. Decomposes at 175°C
- **Freezing Point:** Not pertinent
- **Critical Temperature:** Currently not available
- **Critical Pressure:** Currently not available
- **Specific Gravity:** 2.13 at 22°C dihydrate
- **Liquid Surface Tension:** Not currently available
- **Liquid Water Interfacial Tension:** Currently not available
- **Vapor (Gas) Specific Gravity:** Currently not available
- **Ratio of Specific Heats of Vapor (Gas):** Currently not available
- **Heat of Vaporization:** Currently not available
- **Heat of Decomposition:** Currently not available
- **Heat of Solution:** Not currently available
- **Heat of Polymerization:** Not pertinent
- **Heat of Fusion:** Currently not available
- **Limiting Value:** Currently not available
- **Reid Vapor Pressure:** Currently not available

### NOTES

- **JUNE 1999**
## COBALT FORMATE

### 9.20 SATURATED LIQUID DENSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
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</thead>
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### 9.21 LIQUID HEAT CAPACITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
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### 9.22 LIQUID THERMAL CONDUCTIVITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit inch per hour-square foot-F</th>
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</table>

### 9.23 LIQUID VISCOSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Centipoise</th>
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### 9.24 SOLUBILITY IN WATER

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per 100 pounds of water</th>
</tr>
</thead>
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### 9.25 SATURATED VAPOR PRESSURE

<table>
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<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per square inch</th>
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</thead>
</table>

### 9.26 SATURATED VAPOR DENSITY

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<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
</table>

### 9.27 IDEAL GAS HEAT CAPACITY

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<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
</tr>
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**June 1999**