Bayville Chemical Supply Company Inc.
70-G East Jefryn Boulevard, Deer Park, New York 11729 USA
Telephone: 631-586-4309 E-Mail: info@BayvilleChemical.net Fax: 631-254-5591

Safety Data Sheet

1 Identification of substance:

- **Product details:**
- **Product name: Cobalt powder**
- **CAS#** 7440-48-4
- **Manufacturer/Supplier:**
  Bayville Chemical Supply Company Inc.
  70-G East Jefryn Boulevard
  Deer Park, NY 11729 USA
  CHEMTEL: (800) 255-3924 or 813-248-0585
  Web Site: www.bayvillechemical.net
- **Relevant identified uses of the substance or mixture and uses advised against:**
  Identified uses : Laboratory chemicals, Manufacture of substances
- **Emergency information:**
  CHEMTEL: (800) 255-3924 or 813-248-0585

2 Hazards identification:

- **Classification of the substance or mixture**
  GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
  Respiratory sensitization (Category 1), H334
  Skin sensitization (Category 1), H317
  For the full text of the H-Statements mentioned in this Section, see Section 16.
- **GHS Label elements, including precautionary statements**
  Pictogram

Signal word Danger
Hazard statement(s)
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves.

P285 In case of inadequate ventilation wear respiratory protection.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/ container to an approved waste disposal plant.

- **2.3 Hazards not otherwise classified (HNOC) or not covered by GHS:** none

3 Composition/Data on components:

- **Substances**

Formula: Co
Molecular weight: 58.93 g/mol
CAS-No.: 7440-48-4
EC-No.: 231-158-0
Index-No.: 027-001-00-9

- **Hazardous components**

Component	Classification	Concentration
Cobalt	Resp. Sens. 1; Skin Sens. 1; Aquatic Chronic 4; H317, H334, H413	≤100 %

- For the full text of the H-Statements mentioned in this Section, see Section 16.

4 First aid measures

- **After inhalation:** Seek medical treatment in case of complaints.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact:** Rinse opened eye for several minutes under running water.
- **After swallowing:** Seek immediate medical advice.
- **Most important symptoms and effects, both acute and delayed:** The most important known symptoms and effects are described in the labeling (see section2) and/or in section 11.
- **Indication of any immediate medical attention and special treatment needed:** No data available

5 Fire fighting measures

- **Suitable extinguishing agents**
  CO_2, sand, extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents** Water
- **Special hazards caused by the material, its products of combustion or resulting gases:**
  In case of fire, the following can be released: Metal oxide , Cobalt, Cobalt oxides
- **Protective equipment:**
  Wear self-contained respirator.
  Wear fully protective impervious suit.

6 Accidental release measures

- **Person-related safety precautions:**
  Wear protective equipment. Keep unprotected persons away.
  Ensure adequate ventilation. Avoid dust formation.
- **Measures for environmental protection:**
  Do not allow material to be released to the environment without proper governmental permits. Do not let product enter drains.
- **Measures for cleaning/collecting:**
  Dispose contaminated material as waste according to item 13.
- **Additional information:**
  See Section 7 for information on safe handling
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Information for safe handling:**
  Keep container tightly sealed.
  Store in cool, dry place in tightly closed containers.
  Ensure good ventilation at the workplace.
  Prevent formation of dust.
- **Information about protection against explosions and fires:**
  Dust can combine with air to form an explosive mixture.

- **Storage**
- **Requirements to be met by storerooms and receptacles:**
  Store in a cool location.
- **Information about storage in one common storage facility:**
  Do not store together with oxidizing and acidic materials.
- **Further information about storage conditions:**
  Keep container tightly sealed.
  Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

- **Control parameters**
  Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cobalt	7440-48-4	TWA	0.100000 mg/m^3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.020000 mg/m^3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Pulmonary function, Asthma, Myocardial effects, Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to		

		humans		
		TWA	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Pulmonary function, Asthma, Myocardial effects, Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans varies		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Cobalt	7440-48-4	Cobalt	15.0000 µg/l	Urine	ACGIH – Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		Cobalt	1.0000 µg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Cobalt	15 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			
		Cobalt	1 µg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

- **Exposure controls**
- **Appropriate engineering controls**
  Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- **Personal protective equipment**
  Eye/face protection: Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
  Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin

contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril®

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril®

Data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection: Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

- **Control of environmental exposure:** Do not let product enter drains.

9 Physical and chemical properties:

- **General Information**

- **Form:** Powder
- **Color:** Grey
- **Odor:** Odorless
- **pH:** Not applicable

	Value/Range	Unit	Method
Change in condition			
Melting point/Melting range:	1495	° C	
Boiling point/Boiling range:	2900	° C	
Sublimation temperature / start:	Not determined		
Flash point:	Not applicable		
Evaporation Rate:	Not determined		

- **Flammability (solid, gaseous)** Powder: highly flammable
- **Auto-Ignition temperature:** Not determined
- **Decomposition temperature:** Not determined
- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
- **Lower:** Not determined
- **Upper:** Not determined
- **Vapor pressure:** Not determined
- **Vapor density:** Not determined
- **Density:** at 20 ° C 8.92 g/cm³
- **Solubility in / Miscibility with Water:** Insoluble
- **Partial coefficient: n-octanol/water:** log Pow: 5.0
- **Viscosity:** Not determined
- **Oxidizing properties:** Not determined
- **Other safety information:** No data available

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
  Decomposition will not occur if used and stored according to specifications.
- **Chemical stability:** Sable under recommended storage conditions.
- **Materials to be avoided:**
  Mineral Acids, Oxidizing agents. Acetylene, Hydrazinium nitrate, Strong oxidizing agents, Air. Material readily reacts with acids generating flammable and/or explosive hydrogen gas.
- **Dangerous reactions** Powder: may cause fire. May react in air.
- **Dangerous products of decomposition:** Toxic metal oxide fume.
- **In the event of fire see section 5**

11 Toxicological information

- **Acute toxicity:**
  LD/LC50 values that are relevant for classification:
  Oral: LD50: 7510 mg/kg (rat)
  (OECD Test Guideline 401)
  Inhalation: LC50/30M: 100 mg/m3 (rbt)
  Dermal: No data availalbe

- **Primary irritant effect:**
- **on the skin:** Powder: irritant effect
- **on the eye:** Powder: irritant effect
- **Sensitization:**
  Sensitization possible through inhalation.
  Sensitization possible through skin contact.
- **Other information (about experimental toxicology):**
  Tumorigenic effects have been observed on tests with laboratory animals.
- **Subacute to chronic toxicity:**
  Cobalt is an experimental neoplastigen and tumorigen. It is an experimental carcinogen of the connective tissue and lungs. Cobalt metal and inorganic compounds are classified as an animal carcinogen by the ACGIH. Ingestion may cause burning in

the mouth, esophagus, and stomach. Inhalation of dusts and fumes may cause irritation of the respiratory tract and labored breathing and coughing. Sensitization, nausea, flushing of the face and ringing in the ears is also possible. Chronic ingestion may result in pericardial effusion, polycardial effusion, polycythemia, cardiac failure, vomiting, convulsions and thyroid enlargement.

- **Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.
  IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.
  ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.
  The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.
- **Reproductive toxicity:** No data available
- **Specific target organ toxicity-single exposure:** No data available
- **Specific target organ toxicity-repeated exposure:** No data available
- **Aspiration hazard:** No data available
- **Additional information**
  Repeated dose toxicity-Rat-male and female-inhalation (dust/mist/fume)
  RTECS: GF8750000
  Kidney injury may occur. Damage to the eyes. Lung irritation, Throat, Rash, Vomiting, Diarrhea.

12 Ecological information:

- **General notes:**
  Do not allow material to be released to the environment without proper governmental permits.
- **Toxicity**
  Toxicity to fish LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96.0 h
  Toxicity to algae Remarks: No data available
- **Persistence and degradability:** No data available
- **Bioaccumulative potential**
  Mobility in soil: No data available
- **Results of PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
- **Other adverse effects:** No data available

13 Disposal considerations:

- **Product:**
  Recommendation: Consult state, local or national regulations to ensure proper disposal.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **DOT regulations:**

  UN Number: UN 3089 **Hazard class:** 4.1 **Packing Group:** II
  Proper shipping name: Metal powders, flammable, N.O.S.
  Reportable quantity (RQ):
  Poison inhalation hazard: No

- **Maritime transport IMDG:**
  UN Number: UN 3089 **Hazard class:** 4.1 **Packing Group:** II **EMS-No.:** F-G, S-G
  Proper shipping name: Metal powders, flammable, N.O.S.

- **Air transport ICAO-TI and IATA-DGR:**
  UN Number: UN 3089 **Hazard class:** 4.1 **Packing Group:** II
  Proper shipping name: Metal powders, flammable, N.O.S.

15 Regulations

- **SARA 302 Components:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
- **SARA 313 Components:** The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Cobalt	7440-48-4	2007-07-01

- **SARA 311/312 Hazards:** Fire Hazard, Acute Health Hazard, Chronic Health Hazard

- **Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Cobalt	7440-48-4	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Cobalt	7440-48-4	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Cobalt	7440-48-4	2007-07-01

California Prop. 65 Components: WARNING! This product contains a chemical known to the State of California to cause cancer.

	CAS-No.	Revision Date
Cobalt	7440-48-4	2007-09-28

16 Other information:

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Chronic	Chronic aquatic toxicity
H317	May cause an allergic skin reaction.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H413	May cause long lasting harmful effects to aquatic life.
Resp. Sens.	Respiratory sensitization
Skin Sens.	Skin sensitization

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard:	3

NFPA Rating

Health hazard:	0
Fire Hazard:	3
Reactivity Hazard:	3

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgment of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

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