MATERIAL SAFETY DATA SHEET OF COBALT OXIDE

SECTION 1. PRODUCT IDENTIFICATION

MSDS Name: Cobalt Oxide
Synonyms: -
Molecular Formula: Co₃O₄
Company Identification: Omkar Speciality Chemicals Ltd
F-24, Unit-II, M.I.D.C. Badlapur (E), Dist. Thane, 421 503. Maharashtra, India.

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1308-06-1</td>
<td>Cobalt Oxide</td>
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SECTION 3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! Harmful if swallowed or inhaled. Causes irritation to skin, eyes and respiratory tract. May cause allergic skin or respiratory reaction. Chronic exposure may affect thyroid, lungs, heart, and kidneys.

Potential Health Effects:
Inhalation: Causes irritation to the respiratory tract, symptoms may include coughing, shortness of breath, and nausea. Respiratory hypersensitivity, asthma may appear. Inhalation of cobalt dust and fumes is associated with an increased incidence of lung disease.

Ingestion: Toxic. Causes abdominal pain, nausea, vomiting, flushing of the face and ears, mild hypotension, rash, and ringing in the ears. May have cumulative toxic action where elimination cannot keep pace with absorption. Large amounts depress erythrocyte production.

Skin Contact: Causes irritation to skin. Symptoms include redness, itching, and pain. May cause dermatitis.

Eye Contact: Causes irritation, redness, and pain.
**Chronic Exposure:** Repeated oral administration may produce goiter and reduced thyroid activity. Prolonged or repeated skin exposure may cause dermatitis. Chronic exposure associated with kidney, liver, heart and lung damage.

**Aggravation of Pre-existing Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance. Persons with allergies or sensitivity to cobalt may also be more susceptible to the effects of the substance.

### SECTION 4. FIRST AID

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

**Skin:** Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

### SECTION 5. FIRE AND EXPLOSION

**Fire:** Not considered to be a fire hazard.

**Explosion:** Not considered to be an explosion hazard.

**Fire Extinguishing Media:** Use any means suitable for extinguishing surrounding fire.

**Special Information:** Use protective clothing and breathing equipment appropriate for the surrounding fire.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities.
SECTION 7. HANDLING AND STORAGE

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

SECTION 8. PERSONAL PROTECTION/EXPOSURE CONTROLS

Airborne Exposure Limits:
For Cobalt Compound: 
- OSHA Permissible Exposure Limit (PEL): 0.1 mg/m³ (TWA) Cobalt metal dust and fume as Co 
- ACGIH Threshold Limit Value (TLV): inorganic cobalt compounds: 0.02 mg/m³ (TWA) as Co, A3: Animal carcinogen. Ventilation System: A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, a half-face high efficiency dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece high efficiency dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator.
WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection: Wear protective gloves and clean body-covering clothing.
Eye Protection: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Black Powder
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Boiling Point: Not available.
Freezing/Melting Point: Not available.
Decomposition Temperature: Not available.
Solubility: Completely soluble in water.
Molecular Formula: Co₃O₄
Molecular Weight: 240.8

SECTION 10. REACTIVITY/STABILITY

Stability: Stable under ordinary conditions of use and storage.
Hazardous Decomposition Products: Emits toxic chlorides and possibly cobalt fumes when heated to decomposition. Cobalt oxide fumes may form in fire.
Hazardous Polymerization: Will not occur.
Incompatibilities: Strong oxidizers, strong mineral acids, tert-butyl hydroperoxide, potassium and metal halides, sodium dispersions.
Conditions to Avoid: Incompatibles.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicological Data:
Oral rat LD50: 80 mg/kg. Investigated as a tumorigen, mutagen, and reproductive effector.
Carcinogenicity:
Cobalt and its compounds have been shown to cause cancer in laboratory animals. Cancer Lists
Ingredient: (Cobalt oxide)
Known: No
Anticipated: No
IARC Category: 2B

SECTION 12. ECOLOGICAL INFORMATION

No information available.

SECTION 13. DISPOSAL

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

SECTION 14. TRANSPORTATION
SECTION 15. REGULATORY INFORMATION

Chemical Inventory Status - Part 1
Ingredient : Cobalt oxide
TSCA : Yes
EC : Yes
Japan : Yes
Australia : Yes

SECTION 16 - ADDITIONAL INFORMATION

This document is intended only as a guide to the appropriate precautionary handling of material by a person timed in chemical handling. The user is responsible for a determine the precautions & dangers of this chemical for his or her particular application depending on usage. Adequate protective clothing, including eye / face guards, approved respirators must be used to avoid contact with the material or breathing chemical vapors / fumes. Exposure to this product may cause adverse health effects.

This chemical may interact with other substances. Since the potential uses are so varied, m/s. Omkar Speciality Chemicals Ltd. cannot warn of all of the potential dangers of use or interaction with chemicals of materials. M/s. Omkar Speciality Chemicals Ltd. warrants that, the chemical meets the specifications set forth on the test report.

M/s. Omkar Speciality Chemicals Ltd. Disclaims any other warranties expressed or implied with regard to the product supplied hereunder its merchantability or its fitness for a particular purpose. The user should recognize that, this product can cause severe injury, especially if improperly handled or the known dangers of use are not heeded.

READ ALL PRECAUTIONARY INFORMATIONS.