

1. Product and Company Identification

Product Name : POPCO Z.P.C

Product Use : metal, salt, pigment/dye/ink

Manufacturer : KYUNG KEE COLOR CO., LTD.

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SUBSTANCE: POTASSIUM ZINC CHROMATE HYDROXIDE

TRADE NAMES/SYNONYMS:

CHROMATE(1-), HYDROXYOCTAOXODIZINCATEDI, POTASSIUM; POTASSIUM ZINC CHROMATE HYDROXIDE (KZN₂(CRO₄)₂(OH)); ZINC YELLOW; POTASSIUM HYDROXYOXTAOXODIZINCATEDICHROMATE(1-); Cr₂HKO₉Zn₂; OHS19644; RTECS GA9170000

2. Hazard Identification

GHS Classification : Toxic and hazardous substances

Symbol :



Signal word : Warning

Hazard statement :

NFPA RATINGS (SCALE 0-4): HEALTH=1 FIRE=0 REACTIVITY=0

EC CLASSIFICATION (ASSIGNED): Xn Harmful, Sensitizing

N Dangerous for the Environment

Carcinogen Category 1

R 22-43-45-50/53

EC Classification may be inconsistent with independently-researched data.

EMERGENCY OVERVIEW:

PHYSICAL FORM: solid

MAJOR HEALTH HAZARDS: allergic reactions, cancer hazard (in humans)

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: irritation, allergic reactions, loss of voice, chest pain, difficulty breathing, headache, dizziness, lung congestion

LONG TERM EXPOSURE: lack of sense of smell, lack of sense of smell and taste, tooth decay, digestive disorders, asthma, lung damage, kidney damage, liver damage, cancer

SKIN CONTACT:

SHORT TERM EXPOSURE: irritation, allergic reactions, kidney damage

LONG TERM EXPOSURE: same as effects reported in short term exposure

EYE CONTACT:**SHORT TERM EXPOSURE:** irritation, eye damage**LONG TERM EXPOSURE:** tearing, red bands around the cornea**INGESTION:****SHORT TERM EXPOSURE:** allergic reactions, vomiting, digestive disorders, dizziness, kidney damage, liver damage, coma**LONG TERM EXPOSURE:** no information on significant adverse effects**CARCINOGEN STATUS:****OSHA:** N**NTP:** Y**IARC:** Y

3. Composition/Information on Ingredients

COMPONENT: POTASSIUM ZINC CHROMATE HYDROXIDE**CAS NUMBER:** 11103-86-9**EC NUMBER (EINECS):** 234-329-8**EC INDEX NUMBER:** 024-007-00-3**PERCENTAGE:** 100.0

4. First Aid Measures

INHALATION: Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.**SKIN CONTACT:** Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.**EYE CONTACT:** Wash eyes immediately with large amounts of water, occasionally lifting upper and lower lids, until no evidence of chemical remains. Continue irrigating with normal saline until ready to transport to hospital. Cover with sterile bandages. Get medical attention immediately.**INGESTION:** If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention, if needed.**ANTIDOTE:** calcium disodium edetate/dextrose, intravenous; calcium disodium edetate/procaine, intramuscular, dimercaprol, intramuscular.

5. Fire Fighting Measures

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard.**EXTINGUISHING MEDIA:** Use extinguishing agents appropriate for surrounding fire.**FIRE FIGHTING:** Move container from fire area if it can be done without risk.

Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. Accidental Release Measures

WATER RELEASE: Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65).

Keep out of water supplies and sewers.

OCCUPATIONAL RELEASE: Large spills: Collect spilled material in appropriate container for disposal.

Avoid generating dust. Clean up residue with a high-efficiency particulate filter vacuum.

7. Handling and Storage

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

8. Exposure Controls and Personal Protection

EXPOSURE LIMITS:

POTASSIUM ZINC CHROMATE HYDROXIDE:

ZINC CHROMATES: 0.1 mg(CRO₃)/m³ OSHA ceiling

0.01 mg(Cr)/m³ ACGIH TWA

0.001 mg(Cr(VI))/m³ NIOSH recommended TWA 10 hour(s)

MEASUREMENT METHOD: Particulate filter; Reagent; Visible spectrophotometry; NIOSH III # 7600, Hexavalent

Chromium

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield.

Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

Measurement Element:

Chromium (Cr)

At any detectable concentration -

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive pressure mode.

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Escape - Any air-purifying respirator with a full facepiece and a high-efficiency particulate filter.

Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

9. Physical and Chemical Information

PHYSICAL STATE: solid
ODOR: Not available
MOLECULAR WEIGHT: 418.87
MOLECULAR FORMULA: $K-Zn_2-(Cr-O_4)_2-(O-H)$
BOILING POINT: Not applicable
MELTING POINT: Not available
VAPOR PRESSURE: Not applicable
VAPOR DENSITY: Not applicable
SPECIFIC GRAVITY: Not available
WATER SOLUBILITY: insoluble
PH: Not applicable
VOLATILITY: Not applicable
ODOR THRESHOLD: Not available
EVAPORATION RATE: Not applicable
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

10. Stability and Reactivity

REACTIVITY: Stable at normal temperatures and pressure.
CONDITIONS TO AVOID: Avoid generating dust.
INCOMPATIBILITIES:
POTASSIUM ZINC CHROMATE HYDROXIDE: No data available.

11. Toxicological Information

POTASSIUM ZINC CHROMATE HYDROXIDE:

CARCINOGEN STATUS: NTP: Known Human Carcinogen; IARC: Human Sufficient Evidence, Animal Sufficient Evidence, Group 1; ACGIH: A1 -Confirmed Human Carcinogen; EC: Category 1

An excess risk for lung and sinonasal cancer has been reported in workers in the chromate production, chromate pigment production and chromium plating industries. Zinc chromate has been tested in rats by intrabronchial implantation, producing bronchial carcinomas, by intrapleural administration, producing local tumors, and by subcutaneous and intramuscular injection, producing local sarcomas.

TARGET ORGANS: immune system (sensitizer), kidneys

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: blood system disorders, heart or cardiovascular disorders, liver disorders, respiratory disorders, skin disorders and allergies

MUTAGENIC DATA: mutation in microorganisms - Salmonella typhimurium 33 ug/plate (+S9); mutation in microorganisms - Salmonella typhimurium 100 ug/plate (-S9)

ADDITIONAL DATA: May be excreted in breast milk.
Cross-sensitization reactions may occur between hexavalent and trivalent chromium compounds.

Safety Data Sheet

**HEALTH EFFECTS:
INHALATION:**

POTASSIUM ZINC CHROMATE HYDROXIDE: See information on hexavalent chromium compounds.

ACUTE EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: May cause irritation and tracheobronchitis characterized by cough, sore throat, chest pain, lightheadedness, headache, sinusitis, laryngitis, sneezing, rhinorrhea, wheezing, dyspnea, pulmonary edema, anorexia, fever, and generalized bronchospasm have also been reported. Tracheobronchial irritation and edema may persist after other symptoms subside. Sensitization reactions may occur in previously exposed persons.

CHRONIC EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: Repeated exposure has produced inflammation, bleeding, painless, slow to heal ulcerations and perforation of the nasal septum with a foul discharge. These effects have occurred in workers at concentrations ranging from 0.06-0.72 mg/m³ and varying lengths of exposure. Congestion, hyperemia, rhinitis, pharyngitis, tracheitis, lung inflammation, emphysema, bronchitis, bronchopneumonia, and polyps and hoarseness of the larynx and polyps or cysts of the sinuses have also been reported. X-rays revealed enlargement of the hilar region and lymph nodes, increase in peribronchial and perivascular lung markings and adhesions of the diaphragm. Nodular and non-nodular pneumoconiosis, dental erosion, and cutaneous and dental discoloration, perforated ear drum, loss of sense of smell and taste, and blood changes including leucocytosis or leucopenia may occur. Workers with a high degree of exposure showed a pattern of nephrotoxicity, as evidenced by increases in the indices for renal tubular damage. Gastrointestinal disturbances including spasms, gastritis and ulcers of the stomach and intestines, and hepatitis with or without jaundice may occur. Severe liver damage and central nervous system involvement have been reported in workers. Also, disturbance of short-term memory and attention span were reported. Sensitization reactions may occur resulting in bronchial asthmatic attacks which may have a lag time of 4-8 hours between exposure and the attack. Keratosis of the lips, gingiva and palate have been reported after years of exposure. An excess risk for lung and sinonasal cancer been reported in workers in the chromate production, chromate pigment production and chromium plating industries. An increase in chromosomal aberrations in peripheral blood lymphocytes (3.6-9.4% cells with aberrations compared with 1.9% in unexposed controls) has been reported in workers. Immune depression was noted in rats exposed to 0.2mg/m³ continuously for 90 days; the immune system was stimulated @ <0.1mg/m³. Adverse effects on the macrophages were reported in rabbits exposed for 4-6 weeks. Diffuse thickening of the alveolar walls and

Safety Data Sheet

proliferation of cells along the blood vessels and bronchi were reported in animals exposed to an atmosphere comparable to that of a chromate plant.

SKIN CONTACT:

POTASSIUM ZINC CHROMATE HYDROXIDE: See information on hexavalent chromium compounds.

ACUTE EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: May cause irritation and corrosion. Application to broken skin has produced local necrosis, nausea, vomiting, shock, coma, kidney necrosis, and death. Sensitization reactions may occur in previously exposed persons.

CHRONIC EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: Prolonged or repeated exposure may cause irritative dermatitis, sensitization dermatitis, and chrome ulcers. Sunlight sensitivity has also been reported. Dermatitis may appear as erythema, scattered papules, eczema or dyshidrotic pompholyx; it occurs most commonly on the hands, wrists, and forearms, but frequently on the eyelids, neck, or any other part of the body in contact with the mist or solution. It is very persistent and may fail to improve even many years after cessation of exposure. Repeated attacks of sensitization reactions may be of increasing severity. Ulceration occurs anywhere on the body where the skin is broken. Kidney damage in workers has been reported from absorption through damaged skin.

EYE CONTACT:

POTASSIUM ZINC CHROMATE HYDROXIDE: Contact with solid chromates or concentrated chromate solutions may cause severe, permanent corneal injury. See information on hexavalent chromium compounds.

ACUTE EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: May cause generalized irritation of the conjunctiva. Dichromates may cause corneal injury causing swelling of the corneal stroma.

CHRONIC EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: Repeated and prolonged contact may produce conjunctivitis, lacrimation, and dark red bands around the cornea.

INGESTION:

POTASSIUM ZINC CHROMATE HYDROXIDE: See information on hexavalent chromium compounds.

ACUTE EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: May cause acute fulminating gastroenteritis with nausea, vomiting, thirst, vertigo, oliguria, anuria, cholera-like stools, muscle cramps, convulsions, and coma. Early deaths may result from blood loss into the gastrointestinal tract and at other sites, causing

cardiovascular shock. Survival of the initial phase may be followed by renal and hepatic necrosis and failure which may be fatal. Fatal cases have been reported in which the person showed symptoms which mimicked hepatic coma; convulsions occurred during the final stages. The approximate lethal dose is 1.0-16.0 grams. Chromate dermatitis may be aggravated by ingestion of chromates.

CHRONIC EXPOSURE: HEXAVALENT CHROMIUM COMPOUNDS: Five cases of stomach cancer have been reported, apparently from swallowing of chromate dust or from excessive mouth breathing. Administration in drinking water @ 0.45-25 ppm/1 year was nontoxic to rats. Prolonged administration to rats produced hypoactivity, which indicates chromium may affect the central nervous system.

12. Ecological Information

Not available

13. Disposal Considerations

Hazardous Waste Number(s): D007. Dispose of in accordance with U.S. EPA 40 CFR 262 for concentrations at or above the Regulatory level. Regulatory level-5.0 mg/L. Dispose in accordance with all applicable regulations.

14. Transport Information

No classification assigned.
LAND TRANSPORT ADR/RID: No classification assigned.
AIR TRANSPORT IATA/ICAO: No classification assigned.
MARITIME TRANSPORT IMDG: No classification assigned.

15. Regulatory Information

U.S. REGULATIONS:
TSCA INVENTORY STATUS: Y
TSCA 12(b) EXPORT NOTIFICATION: Y
HEXAVALENT CHROMIUM CHEMICALS
SECTION 6
CERCLA SECTION 103 (40CFR302.4): N
SARA SECTION 302 (40CFR355.30): N
SARA SECTION 304 (40CFR355.40): N
SARA SECTION 313 (40CFR372.65): Y
ZINC COMPOUNDS
Chromium Compounds
SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
ACUTE: Y
CHRONIC: Y
FIRE: N
REACTIVE: N
SUDDEN RELEASE: N

OSHA PROCESS SAFETY (29CFR1910.119): N

STATE REGULATIONS:

California Proposition 65: Y

Known to the state of California to cause the following: Hexavalent Chromium Compounds

Cancer (Feb 27, 1987)

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 234-329-8

EC RISK AND SAFETY PHRASES:

R 22 Harmful if swallowed.

R 43 May cause sensitization by skin contact.

R 45 May cause cancer.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

S 60 This material and/or its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

16. Other Information

The information contained herein is based on the present state of our knowledge and does not therefore guarantee certain properties. Recipients of our product must take responsibility for observing existing laws and regulations.

NOTE: The information submitted in publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application. This data should not be viewed as a sure guarantee, either for profession description or for detailed application. For any products supplied by KKC CO. LTD. customers also should have the evaluation to check quality and application.