

MATERIAL SAFETY DATA SHEET

CHEMICAL FAMILY: Inorganic
PRODUCT NAME: ORANGE STAIN
CAS #: 99749-34-5
CHEMICAL NAME: Zircon, cadmium orange
CHEMICAL FORMULA: CdSeZrSi

This product is a blend of various metal oxides, salts and some other compounds which are interfused by high temperature calcination to form the insoluble finished product which typically does not exhibit the properties of the individual components.

The Cadmium is encased in a Zirconium layer which renders the Cadmium insoluble. Cadmium leachability tests performed using ASTM D 5517 – 03 found that over a 24 hour period on average 167 ppm of Cadmium was released into a standard acid solution.

HAZARDOUS COMPONENTS

Stain is a fused substance. The components of the final product listed below are from the inventory of potentially hazardous substances referenced by FED-OSHA in 29 CFR 1910.1200

| COMPONENT | Exposure Limit (Air), mg/m ³ | | |
|---|---|--------------|--------------|
| | ACGIH/TLV | FED-OSHA/PEL | CAL-OSHA/PEL |
| Cadmium/Selenium Compound (CdSeS) (CAS 7440-43-9) | 0.01/0.002 resp | 0.005 | 0.1 |

ACGIH, OSHA, IARC, NTP: consider various forms of cadmium are to be carcinogenic..

Symptoms of Overexposure:

Inhalation: Overexposure to Cadmium can result in metallic taste in mouth, headache, shortness of breath, chest pains, weakness, leg pains and fluid in the lung. These symptoms may be delayed, sometimes occurring 4 – 8 hrs after exposure. Long term overexposure to cadmium fumes and dust have been associated with emphysema, bronchitis and kidney damage. Chronic overexposure to metal and cadmium compounds, such as cadmium oxide, cadmium sulphide, cadmium sulphate and cadmium chloride, may result in lung cancer, although a definite cause-effect relationship has not been fully established.

Eye Contact: May cause irritation.

Skin Contact: May cause irritation.

Ingestion: Swallowing may result in severe nausea, vomiting, diarrhoea, stomach cramps, salivation, headache, muscle cramps and dizziness.

| COMPONENT | Exposure Limit (Air), mg/m ³ | | |
|---|---|--------------|--------------|
| | ACGIH/TLV | FED-OSHA/PEL | CAL-OSHA/PEL |
| Silica, Crystalline (SiO ₂) (CAS 14808-60-7) | 0.1 | 10 | 0.05 |

ACGIH: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of carcinogenicity in humans/animals.

Symptoms of overexposure:

Inhalation:

- a) Prolonged exposure to respirable crystalline silica (quartz) can cause Silicosis, afibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death. Silicosis increases risk of Tuberculosis.
- b) Inhaled from occupational sources is classified as carcinogenic to humans.
- c) There is evidence that exposure to respirable crystalline silica or that the disease Silicosis is associated with increased incidence of Scleroderma, an auto-immune disorder manifested by fibrosis (scarring) of the skin and internal organs.
- d) There are several studies suggesting that exposure to respirable silica or that the disease Silicosis is associated with the increased incidence of kidney disorders. (Nephrotoxicity)

Eye Contact: May cause abrasions of the cornea.
Skin Contact: Not applicable.
Ingestion: Not applicable.

| COMPONENT | Exposure Limit (Air), mg/m ³ | | |
|---|---|--------------|--------------|
| | ACGIH/TLV | FED-OSHA/PEL | CAL-OSHA/PEL |
| Zirconium Silicate (ZrO) (CAS 1314-24-4) | 10/5 resp | 15/5 resp | 5 |

ACGIH: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of carcinogenicity in humans/animals.

Symptoms of overexposure:

Inhalation: Acute inhalation to respirable dust which contains radioactive uranium, tohium and radium may cause lung cancer.

Eye Contact: May cause abrasions of the cornea.
Skin Contact: Not applicable.
Ingestion: Not applicable.

SARA III DATA

This product contains the following component(s) that require reporting under section 313 of the Emergency Section of the Emergency Planning and Community Right-To-Know Act, also known as

Title III of the SARA and 40 CFR Part 372.

| COMPONENT | PERCENT PRESENT |
|------------------|------------------------|
| Cadmium Compound | ~ 15 % |

The percent reported is based on the theoretical composition of this Stain.

PHYSICAL DESCRIPTION/PROPERTIES:

| | |
|-------------------------------|----------------|
| APPEARANCE: | Orange powder. |
| ODOUR: | None. |
| BOILING POINT: | Not Applicable |
| MELTING POINT: | > 600°C |
| VAPOUR PRESSURE: | Not Applicable |
| SPECIFIC GRAVITY: | 1.6 – 3.0 |
| SOLUBILITY IN WATER: | Negligible |
| VISCOSITY: | No Data |
| pH: | Neutra |
| VOLATILE ORGANIC COMP: | None |

FIRE & EXPLOSION HAZARD

| | |
|---|------|
| FLASH POINT: | N/A |
| FLAMMABLE LIMITES: | N/A |
| EXTINGUISHING MEDIA: | None |
| USUAL FIRE & EXPLOSION HAZARD: | None |

REACTIVITY DATA

| | |
|--|-------------------------|
| STABILITY: | Stable |
| INCOMPATABILITY: | N/A |
| HAZARDOUS DECOMPOSITION PRODUCTS: | Avoid fumes form firing |
| HAZARDOUS POLYMERISATION: | Will not occur |

HEALTH HAZARD DATA

PRINCIPAL ROUTES OF ABSORPTION: Inhalation and Ingestion

EFFECTS OF OVER EXPOSURE: Prolonged contact with stain dust can be very irritating to the eyes and/or skin. High dust levels can be irritating to the respiratory tract. Over exposure to dust may cause lung damage. With adequate ventilation, dust control and good personal hygiene, symptoms of over exposure should not occur. Ingestion of large amounts of stain may cause irritation of the gastrointestinal tract, nausea, vomiting and diarrhea. Advise regular medical monitoring of employees by a physician competent in

industrial health.

CARCINOGENICITY: N/A

EMERGENCY & FIRST AID PROCEDURES: If overexposure is suspected move employees to fresh air; if breathing is difficult give oxygen. Call a physician. For dust in eyes, flush immediately with clean water and call a physician. If ingested, give large amounts of water to induce vomiting, only in conscious person.

SOURCES OF HEALTH HAZARD DATA: The MSDS was developed from information on the constituent substances of this stain material, not from test data on the stain itself.**PRECAUTIONS FOR SAFE HANDLING AND USE:**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Uncontaminated material may be recovered and re-used. If contaminated, scoop, vacuum or wash into a receptacle or disposal.

WASTE DISPOSAL METHOD: Follow Federal or State and Local regulations for disposal.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Protect containers against physical damage, store in a dry area away from feed and food products.

OTHER PRECAUTIONS: Employees should wash and change into clean clothes before going home.

CONTROL MEASURES

RESPIRATORY PROTECTION: Use a NIOSH approved dust and/or fume respirator as necessary.

VENTILATION: Local Exhaust – Recommended for dust control; vent dust to collector.

PROTECTIVE GLOVES: Use judgment – work gloves recommended.

EYE PROTECTION: Use judgment – safety glasses recommended.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Wear appropriate clean, protective clothing such as, but not limited to coveralls, smock, aprons, gloves, shoes and hats.

WORK/HYGENIC PRACTICES: Food, beverages and smoking materials should NOT be in the working area. Hygiene is very important; employees should wash thoroughly before eating, drinking or smoking.

REGULATORY INFORMATION: CLASSIFICATION AND LABELLING (EEC)

Classification:

T

Label Information:

R-22 Harmful if swallowed.

R-40 Possible risk of irreversible effects.

R-48/23/25 Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

R-53 May cause long-term adverse effects in the aquatic environment.

S-1/2 Keep locked up and out of the reach of children.

S-22 Do not breathe dust.

S-36/37 Wear suitable protective clothing and gloves.

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

S-61 Avoid release to the environment. Refer to special instructions/ Safety Data Sheets.

OTHER INFORMATION: DISCLAIMER:

Supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will conduct his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Material Safety Data Sheet before handling product.

KEY/LEGEND:

NA = Not available or Not Applicable; ACGIH = American Conference of Governmental Industrial Hygienists; TLV = Threshold Limit Value; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; CAL/OSHA = California Occupational Safety and Health Administration; CFR = Code of Federal Regulations; FED/OSHS = Federal Occupational Safety and Health Administration; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; PEL = Permissible Exposure Limits; TSCA – Toxic Substances Control Act; TWA = Time Weighted Average; US-EPA = US Environmental Protection Agency

END OF MATERIAL SAFETY DATA SHEET