1. PRODUCT IDENTIFICATION

Chromium-Silicon Monoxide
Metal-ceramic
FORMULA: CrSiO
SYNONYMS:
Chromium-silicon monoxide, chromium 50% silicon monoxide 50%

2. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS#</th>
<th>Concentration</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium</td>
<td>7440-47-3</td>
<td>0.0 -50.0 %</td>
<td>1 mg/m3</td>
<td>0.5 mg/m3</td>
</tr>
<tr>
<td>Silicon monoxide</td>
<td>10097-28-6</td>
<td>0.0 -50.0 %</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

See SECTION IX-ADDITIONAL COMMENTS FOR COSHH Regulations

3. PHYSICAL/CHEMICAL CHARACTERISTICS

PHYSICAL STATES: Solid
MELTING POINT: NA
BOILING POINT: NA
SPECIFIC GRAVITY (Water = 1): NE
VAPOR PRESSURE (Vs. Air Or Mm Hg): NA
VAPOR DENSITY (Vs. Air = 1): NA
EVAPORATION RATE (Vs Butyl Acetate=1): NA
SOLUBILITY IN WATER: Insoluble
PERCENT VOLATILE: NA
APPEARANCE AND ODOR: Brown pieces, no odor.

4. SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH PT: NA
METHOD USED: Unknown
EXPLOSIVE LIMITS:
LEL: NA
UEL: NA
EXTINGUISHING MEDIA USE: Not applicable. Use applicable extinguishing agent for surrounding materials and type of fire.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

UNUSUAL FIRE AND EXPLOSION HAZARDS

None recorded.

HAZARDOUS COMBUSTION PRODUCTS
5. SECTION V - REACTIVITY DATA

STABILITY: Stable
CONDITIONS TO AVOID – INSTABILITY: None
INCOMPATIBILITY - MATERIALS TO AVOID: None recorded.
HAZARDOUS DECOMPOSITION OR BYPRODUCTS: None recorded.
HAZARDOUS POLYMERIZATION: Will not occur
CONDITIONS TO AVOID - HAZARDOUS POLYMERIZATION: None

6. SECTION VI - HEALTH HAZARD DATA

HEALTH HAZARDS (ACUTE AND CHRONIC)
To the best of our knowledge the chemical, physical and toxicological properties of chromium-silicon monoxide have not been thoroughly investigated and recorded.

CHROMIUM: Confirmed human carcinogen with experimental tumorigenic data. Human poison by ingestion with gastrointestinal effects. (Sax, Dangerous Properties of Industrial Materials)

INHALATION:
Acute: May cause irritation to the respiratory tract resulting in coughing, wheezing and shortness of breath.
Chronic: May cause histologic fibrosis of lungs, nasal and/or lung cancer.

INGESTION:
Acute: May cause gastrointestinal disorders.
Chronic: No chronic health effects recorded.

SKIN:
Acute: May cause abbrasive irritation.
Chronic: No chronic health effects recorded.

EYE:
Acute: May cause abbrasive irritation.
Chronic: No chronic health effects recorded.

TARGET ORGANS: May affect the respiratory system.

CARCINOGENICITY:
NTP? Yes  IARC Monographs? Yes  OSHA Regulated? Yes
RECOMMENDED EXPOSURE LIMITS
See "Section II"
LD 50 / LC 50
See "Other Toxicity Data"

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: May cause a red, dry throat, coughing and shortness of breath.

INGESTION: May cause gastritis, convulsions, asphyxia, giddiness, nausea, diarrhea and vomiting.

SKIN: May cause redness and itching.

EYE: May cause redness, itching and watering.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Pre-existing respiratory disorders, pulmonary functions and asthma.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

INGESTION: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention immediately. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if symptoms persist.

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

7. PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Wear appropriate respiratory and protective equipment specified in section VIII-control measures. Isolate spill area and provide ventilation. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.

WASTE DISPOSAL METHOD:
Dispose of in accordance with local, state and federal regulations.

HAZARD LABEL INFORMATION:
Store in cool, dry area
Store in tightly sealed container
Wash thoroughly after handling

PRECAUTIONS TO BE TAKEN IN HANDLING:
PRECAUTIONS TO BE TAKEN IN STORING:
OTHER PRECAUTIONS: None

8. CONTROL MEASURES

PROTECTIVE EQUIPMENT SUMMARY - HAZARD LABEL INFORMATION:

NIOSH approved respirator, Impervious gloves, Safety glasses, Clothes to prevent skin contact
RESPIRATORY EQUIPMENT (SPECIFY TYPE): NIOSH - approved dust respirator
EYE PROTECTION: Safety glasses
PROTECTIVE GLOVES: Rubber gloves
OTHER PROTECTIVE CLOTHING: Protective gear suitable to prevent contamination
VENTILATION: Local Exhaust: To maintain concentration at or below PEL, TLV
SPECIAL: None
MECHANICAL (Gen): Not recommended
OTHER: None
WORK/HYGIENIC/MAINTENANCE PRACTICES:

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

9. OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, with a controlled environment. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall TieWay International, Inc. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if TieWay International, Inc. has been advised of the possibility of such damages.

References:

1. American Chemical Society, STN Easy Online Database
6. Industrial Hygiene and Toxicology, by F. A. Patty.
7. National Library of Medicine, Department of Health and Human Services, Hazardous Substances Data Bank (HSDB).
8. National Library of Medicine, Department of Health and Human Services, Hazardous Substances Data Bank (HSDB).
9. Niosh Registry of Toxic Effects of Chemical Substances (RECES) and Pocket Guide to Chemical Hazards.

All questions should be directed to Customer Service (214-274-4223) for assistance

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