



OREGON RESOURCES
CORPORATION

Material Safety Data Sheet

FOR INDUSTRIAL USE ONLY

Spherichrome

1. Product and company identification

| | |
|---|---|
| Product name | Spherichrome |
| MSDS Number | 002A |
| Product Type | Chromite Sand and Chromite Flour |
| Product use | Foundry Core and Mold/Mould Applications |
| Manufacturer, Importer, Supplier | Oregon Resources Corporation 63776 Mullen Road Coos Bay, OR 97420 |
| Print date | 30-NOV-2011 |
| Telephone | For Emergency Medical Assistance Call Health & Safety Information Services, 541-217-4696 For Emergency Transportation Information CHEMTREC US Domestic (800) 424-9300 CHEMTREC International (703) 527-3887 CANUTEC CA Domestic (613) 996-6666 |

2. Hazards identification

| | |
|--|---|
| Form | Free flowing granules |
| Odor | Odorless/Odourless |
| OSHA/HCS status | This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| Emergency overview | WARNING! CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE EYE AND SKIN IRRITATION. |
| <u>Potential acute health effects</u> | |
| Inhalation | Slightly irritating to the respiratory system. |
| Ingestion | Not expected to be harmful under normal conditions of use. |
| Skin | Slightly irritating to the skin. |
| Eyes | Slightly irritating to the eyes. |
| <u>Potential chronic health effects</u> | |
| Chronic effects | No known significant effects or critical hazards. |

| | |
|------------------------------|--|
| Carcinogenicity | None of the components present at >0.1% are listed as carcinogenic by IARC, NTP, OSHA, or the EU Dangerous Substances Directive. |
| Mutagenicity | No known significant effects or critical hazards. |
| Teratogenicity | No known significant effects or critical hazards. |
| Developmental effects | No known significant effects or critical hazards. |
| Fertility effects | No known significant effects or critical hazards. |
| Target organs | Review Section 2 and 11 for any additional assessments. |

Over-exposure signs/symptoms

| | |
|---|---|
| Inhalation | Adverse symptoms may include the following: respiratory tract irritation, coughing, |
| Ingestion | No specific data. |
| Skin | Adverse symptoms may include the following: irritation, redness, |
| Eyes | Adverse symptoms may include the following: irritation, watering, redness, |
| Medical conditions aggravated by over-exposure | None known |

See section 11 for more detailed information on health effects and symptoms.

3. Composition/Information on ingredients

| <u>Ingredient name</u> | <u>CAS number</u> | <u>WT %</u> |
|--|-------------------|-------------|
| Chromite (Cr ₂ FeO ₄) | 1308-38-9 | 96.0 - 100. |
| Ilmenite (FeTiO ₃) | 12168-52-4 | 0.5 - 2.0 |

*** Any applicable Canadian trade secret numbers will be listed in Section 15.*

4. First aid measures

| | |
|--|---|
| Eye contact | Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| Skin contact | Flush contaminated skin with plenty of water. Get medical attention if symptoms occur. |
| Inhalation | Move exposed person to fresh air. Get medical attention if symptoms occur. |
| Ingestion | Wash out mouth with water. Get medical attention if symptoms occur. |
| Protection of first aid personnel | No action shall be taken involving any personal risk or without suitable training. |
| Notes to physician | No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |

See section 11 for more detailed information on health effects and symptoms.

5. Fire-fighting measures

| | |
|---|---|
| Flammability of the product | No specific fire or explosion hazard. |
| Extinguishing media | |
| Suitable | Use an extinguishing agent suitable for the surrounding fire. |
| Not suitable | None known. |
| Special exposure hazards | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Hazardous combustion products | Decomposition products may include the following materials: metal oxide/oxides, carbon oxides. |
| Special protective equipment for fire-fighters | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

6. Accidental release measures

| | |
|----------------------------------|---|
| Personal precautions | No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8). |
| Environmental precautions | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| Large spill | Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Note: see section 1 for emergency contact information and section 13 for waste disposal. |
| Small spill | Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. |

7. Handling and storage

| | |
|-----------------|--|
| Handling | Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not reuse container. |
| Storage | Store in accordance with local regulations. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept tight to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. |

8. Exposure controls/personal protection

Ingredient name

Chromite (Cr₂FeO₄)

Occupational exposure limits

ACGIH TLV Time Weighted Average (TWA)

0.5 mg/m³

(Inorganic , Calculated as Cr)

Consult local authorities for acceptable exposure limits.

Recommended

monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Eyes

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9. Physical and chemical properties

| | |
|----------------------------------|----------------------------------|
| Form | Free flowing granules |
| Color | Sand – Black; Flour – Red-Brown |
| Odor | Odorless/Odourless |
| Odor threshold | Not Available |
| pH | Not Available |
| Boiling Point | Not Available |
| Flash point | Non-flammable. |
| Auto-ignition temperature | Not applicable. |
| Flammable limits | |
| Lower: | Not defined for solids (See MEC) |
| Upper: | Not defined for solids |
| Vapor Pressure | Not Applicable |
| Vapor Density | Not Applicable |
| Relative Density | Approx. 4.4 |
| Tapped Bulk Density | 145.88 lbs/ft ³ |
| Untapped Bulk Density | 98.23 lbs/ft ³ |
| Solubility | Insoluble |
| Partition Coefficient | Not Applicable |
| n-octanol/water | Not Available |
| Decomposition Temp | Kinematic-not available |
| Viscosity | Dynamic-not applicable |
| | Not Available |
| Typical % solids | |

Other information

Not Applicable

10. Stability and reactivity

| | |
|---|---|
| Stability | The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur. |
| Reactivity | Stable under normal conditions. |
| Conditions to avoid | Avoid exposure - obtain special instructions before use. |
| Materials to avoid | No specific data. |
| Other hazards | No information available. |
| Hazardous decomposition products | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

11. Toxicological Information

Acute toxicity

No data available

Other Toxicological Information

Carcinogenicity

Conclusion/Summary None of the components of this material present at >0.1% present a known cancer hazard..

Classification

Ingredient name

Chromite (Cr₂FeO₄)

| | |
|-------|----------------|
| ACGIH | Not classified |
| IARC | Not classified |
| NTP | Not listed |
| OSHA | Not regulated |
| EU | Not classified |

(Ilmenite)

| | |
|-------|----------------|
| ACGIH | Not classified |
| IARC | Not classified |
| NTP | Not listed |
| OSHA | Not regulated |
| EU | Not classified |

12. Ecological information

Environmental effects

No known significant effects or critical hazards.

Other adverse effects

No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

14. Transport information

The data provided in this section is for information only and may not be specific to your package size or mode of transport. You will need to apply the appropriate regulations to properly classify your shipment for transportation.

International transport regulations

| Regulatory information | UN/NA number | Proper shipping name | Classes/*PG | Reportable Quantity (RQ) |
|-------------------------------|---------------------|-----------------------------|--------------------|---------------------------------|
| CFR | | Non-regulated | | |
| TDG | | Non-regulated | | |
| IMO/IMDG | | Non-regulated | | |
| IATA (Cargo) | | Non-regulated | | |

*PG : Packing group

15. Regulatory information

US regulations

HCS Classification Irritating material

U.S. Federal regulations

SARA 311/312 Classification Immediate (acute) health hazard

SARA 313 - Supplier Notification

This product contains the following toxic chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C-Supplier Notification Requirement of 40 CFR Part 372.

The following components are listed : Chromite (Cr₂FeO₄) – 1308-31-2

SARA 302 Extremely Hazardous Substances None required.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants The following components are listed: Chromite (Cr₂FeO₄) .

State regulations

Massachusetts RTK Substances The following components are listed: Chromite (Cr₂FeO₄)

New Jersey RTK Hazardous Substances The following components are listed: Chromiite (Cr₂O₃),

Pennsylvania RTK Hazardous Substances The following components are listed: Chromite (Cr₂FeO₄)

California Prop. 65: The following components are listed: None

Canada

WHMIS (Canada)

Class D-2B: Material causing other toxic effects (Toxic).

Canadian lists

Canadian NPRI: The following components are listed:, Chromite (Cr₂FeO₄),

International regulations

Chemical inventories

Australia inventory (AICS) All components are listed or exempted.

Canada inventory All components are listed or exempted.

Japan inventory Not Determined

China inventory (IECSC) Not Determined

Korea inventory All components are listed or exempted.

New Zealand Inventory (NZIoC) Not determined.

Philippines inventory (PICCS) Not determined.

United States inventory (TSCA 8b) All components are listed or exempted.

16. Other information

Hazardous Material Information System III (U.S.A.)

Health : 1
Flammability: 0
Physical hazards : 0
Chronic :

Caution: HMIS[®] ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS[®] ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS[®] ratings are to be used with a fully implemented HMIS[®] program. HMIS[®] is a registered mark of the National Paint & Coatings Association (NPCA). HMIS[®] materials may be purchased exclusively from J. J. Keller (800) 327-6868. The customer is responsible for determining the PPE code for this material.

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