



MATERIAL SAFETY DATA SHEET

Ferro Corporation
Performance Pigments & Colors
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Emergency telephone number
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CHEMTREC (outside U.S.): 1-703-527-3887
Phone Number: 1-724-223-5900

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: C-2222EZ BRIGHT BLUE 100 LB **Date of Preparation:** 08/04/2010
LDRUM
Chemical Family: Inorganic Pigment
Synonym: Pigment Blue 28 .
CAS-No.: Mixture
C.I. Number: 77346
Product Code: 1026573

2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

May cause eye/skin irritation. May cause irritation of respiratory tract. Avoid dust formation. May cause allergic skin or respiratory reaction.

| | | <u>HMIS</u> | <u>NFPA 704</u> |
|------------------------|----------|-------------|-----------------|
| Color: | Blue | 1* | 1 |
| Physical state: | Powder | 0 | 0 |
| Odor: | Odorless | 0 | 0 |
| | | E | |

Potential Health Effects

Principle routes of exposure: Inhalation. Ingestion.

Eye contact: May cause irritation.

Skin contact: Prolonged skin contact may cause skin irritation and/or dermatitis. May cause allergic skin reaction.

Inhalation: Dust irritating to respiratory tract. May cause severe allergic respiratory reaction.

Ingestion: May irritate digestive tract.

Chronic toxicity: Repeated or prolonged exposure to the substance can produce lung damage. This product contains amorphous silica. Overexposure by inhalation of respirable dust may cause respiratory problems including pneumoconiosis. Suspect cancer hazard (cobalt compound).

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Components | CAS Number | Weight % |
|--|------------|----------|
| Cobalt aluminate blue, spinel | 1345-16-0 | 80 - 90% |
| Ceramic materials and wares, chemicals | 66402-68-4 | 10 - 20% |

The mixed metal oxide pigment in this product is made by high temperature fusion. Due to resulting unique structure, the fired pigment will not necessarily exhibit the same properties as the component oxides or metals in their pure state.

4. FIRST AID MEASURES

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| Eye contact: | Rinse immediately with plenty of water, also under the eyelids. Get medical attention if irritation develops. |
| Skin contact: | Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before re-use. If symptoms persist, call a physician. |
| Inhalation: | Move to fresh air. If breathing is difficult, give oxygen. Call a physician immediately. |
| Ingestion: | Drink plenty of water. Do not induce vomiting. Consult a physician if necessary. |
| Notes to physician: | Treat symptomatically. |

5. FIRE-FIGHTING MEASURES

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|---|---|
| Flash point (°C): | Non combustible |
| Suitable extinguishing media: | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Hazardous decomposition products: | Metal fumes. |
| Special protective equipment for firefighters: | As in any fire, wear self-contained breathing apparatus (pressure-demand, NIOSH approved or equivalent) and full protective gear. |

6. ACCIDENTAL RELEASE MEASURES

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| Personal precautions: | Avoid dust formation. Evacuate area of all unnecessary personnel. Avoid contact with skin, eyes and clothing. Use personal protective equipment. Wear personal protective equipment. Ensure adequate ventilation. |
| Environmental precautions: | Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. |
| Methods for cleaning up: | Clean up promptly by scoop or vacuum. Wear personal protective equipment. Keep in suitable, closed containers for disposal. Shovel into suitable container for disposal. Dispose of promptly. Clean contaminated surface thoroughly. |

7. HANDLING AND STORAGE

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| Handling: | Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid contact with skin, eyes and clothing. Wash hands thoroughly before eating, drinking or smoking. |
| Storage: | Keep container tightly closed in a dry and well-ventilated place. Store in original container. |

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Minimize exposure in accordance with good hygiene practice.

| Components | OSHA | ACGIH |
|--|----------------------------|--|
| Ceramic materials and wares, chemicals | 5 mg/m ³ TWA Zr | 10 mg/m ³ STEL Zr 0.2 mg/m ³ TWA Mn 5 mg/m ³ TWA Zr |

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| Engineering measures: | Provide appropriate exhaust ventilation at machinery and at places where dust or fumes can be generated. |
| Eye protection: | Safety glasses with side-shields. |
| Skin and body protection: | Lightweight protective clothing. |

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| Hand protection: | Impervious gloves. |
| Respiratory protection: | Use NIOSH approved respirator when ventilation is inadequate. In case of insufficient ventilation wear suitable respiratory equipment. Seek professional advise prior to respirator selection and use. NIOSH-approved respirators should be worn where engineering controls and work practices do not reduce exposure to or below the PEL. |
| Hygiene measures: | Wash hands before breaks and at the end of workday. Contaminated work clothing should not be allowed out of the workplace. Ensure that eyewash stations and safety showers are proximal to the work-station location. |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|----------------------------------|-------------------|-------------------------------------|-------------------|
| Color: | Blue | Physical state: | Powder |
| Odor: | Odorless | Molecular weight: | No data available |
| Boiling point/range (°C): | No data available | pH: | No data available |
| Melting point/range (°C): | No data available | Specific gravity (Water =1): | 4.200 - 4.600 |
| Vapor pressure (mmHg): | No data available | Water solubility: | Negligible |
| VOC content (%) | No data available | | |

10. STABILITY AND REACTIVITY

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| Stability: | Stable at normal conditions. |
| Polymerization | Will not occur. |
| Hazardous decomposition products: | Thermal decomposition can lead to release of irritating gases and vapors |
| Materials to avoid: | None known |
| Conditions to avoid | None known |

11. TOXICOLOGICAL INFORMATION

| | |
|---|---|
| Acute toxicity: | Information given is based on data on the components and the toxicology of similar products |
| Carcinogenic Effects: | IARC has identified Cobalt and Cobalt compounds as "possibly carcinogenic" as a group; however IARC did not specifically identify the cobalt compound in this product as a possible carcinogen. |
| Target Organ Effects: | Amorphous silica: Respiratory system, eyes. Cobalt compound: Skin, respiratory system. |
| Component information, if any, is listed below | |
| <u>Silica, fumed</u> | |
| LD50s and LC50s: | Oral LD50 (Rat) = 3160 mg/kg |

12. ECOLOGICAL INFORMATION

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|---------------------------------------|--|
| Aquatic toxicity: | Information given is based on data on the components and the ecotoxicology of similar products |
| Persistence and degradability: | Not determined |

13. DISPOSAL CONSIDERATIONS

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| Waste from residues / unused products: | Waste must be disposed of in accordance with federal, state and local environmental control regulations. Where possible recycling is preferred to disposal or incineration. |
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14. TRANSPORT INFORMATION

DOT (U.S.)

Proper shipping name: Not regulated.

TDG (Canada)

Proper shipping name: Not regulated.

15. REGULATORY INFORMATION

U.S. Regulations:

TSCA: Not subject to TSCA 12(b) Export Notification

SARA 313:

| Components | SARA 313: |
|---|--------------------------------|
| Ceramic materials and wares, chemicals (10 - 20%) | 1.0 % de minimis concentration |

State Regulations

This product or its ingredients have been evaluated for New Jersey, Pennsylvania, and California Prop 65 supplier notification requirements. Substances that are subject to notification requirements, if any, are listed below.

| Components | State Regulations - NJ; PA |
|--|----------------------------------|
| Cobalt aluminate blue, spinel | Listed (NJRTK) Listed (PARTK) |
| Ceramic materials and wares, chemicals | Listed (NJRTK) Listed (PARTK) |

Canadian WHMIS

WHMIS hazard class: D2B Toxic materials, D2A Very toxic materials.

Canadian Ingredient Disclosure List (IDL):

| Components | Canada - WHMIS Ingredient Disclosure: |
|--|---------------------------------------|
| Ceramic materials and wares, chemicals | 1 |

International Inventories

TSCA 8(b): Listed or exempt.
Canadian DSL: Listed or exempt.
EC-No. Listed or exempt.
Philippines (PICCS): Listed.
Japan (ENCS): One or more ingredient(s) are not on the ENCS list.
Korea (KECL): Listed.
China (IECS): Listed.
Australia (AICS): Listed.
New Zealand (NZIoC): Listed.

16. OTHER INFORMATION

For Industrial Use Only

Prepared by: Ferro Technical Center

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No warranty, guaranty or representation is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine its environmental regulatory compliance obligations under any applicable federal or state laws.

End of Safety Data Sheet