



MATERIAL SAFETY DATA SHEET

Ferro Corporation
Performance Pigments & Colors
251 West Wylie Ave.
Washington, PA 15301 USA

Emergency telephone number
CHEMTREC: 1-800-424-9300
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: 4346A BROWN GLAZE **Date of Preparation:** 12/17/2010
Chemical Family: Inorganic Pigment
CAS-No.: Mixture
Product Code: 1219202

2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

May cause respiratory tract, eye and skin irritation.

		HMIS	NFPA 704
Color:	Brown	1	1
Physical state:	Powder	0	0
Odor:	None	0	0
		B	

Potential Health Effects

Principle routes of exposure: Inhalation, ingestion, skin and eye contact.

Eye contact: Contact with eyes may cause irritation.

Skin contact: Prolonged skin contact may cause skin irritation.

Inhalation: Over-exposure by inhalation may cause respiratory irritation.

Ingestion: May irritate digestive tract.

Chronic toxicity: Excessive inhalation of fumes or dust may cause chemical pneumonitis, cyanosis, and pulmonary edema.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Zinc Oxide	1314-13-2	30 - 40%
Chromium(III) oxide	1308-38-9	30 - 40%
Iron oxide	1332-37-2	20 - 30%
Iron Oxide Black	1317-61-9	1 - 5%
Silica, fumed	112945-52-5	1 - 5%

4. FIRST AID MEASURES

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. If symptoms persist, call a physician.

Ingestion: Drink plenty of water. Do not induce vomiting. Consult a physician if necessary.

Notes to physician: Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point (°C): Non combustible

Suitable extinguishing media: Carbon dioxide (CO₂). Dry chemical. Water spray mist or foam.

Hazardous decomposition products: Thermal decomposition can lead to release of irritating gases and vapors. Heavy metal compounds.

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

Personal precautions: Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

Methods for cleaning up: Wear personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Shovel into suitable container for disposal. Clean contaminated surface thoroughly. Dispose of promptly.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practice. Use only in area provided with appropriate exhaust ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin, eyes and clothing. Do not eat, drink, or smoke in areas of use or storage. Do not take internally. Wash thoroughly after handling. Use only in well-ventilated areas.

Storage: Keep in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Additional Exposure Info. Minimize exposure in accordance with good hygiene practice.

Components	OSHA	ACGIH
Zinc Oxide	15 mg/m ³ TWA	10 mg/m ³ STEL respirable fraction 2 mg/m ³ TWA respirable fraction
Chromium(III) oxide	0.5 mg/m ³ TWA Cr	0.5 mg/m ³ TWA Cr
Iron oxide	Not established	Not established
Iron Oxide Black	Not established	1 mg/m ³ TWA Fe
Silica, fumed	Not established	Not established

Engineering measures: Provide appropriate exhaust ventilation at machinery and at places where dust or fumes can be generated. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Eye protection: Safety glasses with side-shields.

Skin and body protection: Lightweight protective clothing. Keep working clothes separately. Remove and wash contaminated clothing before re-use.

Hand protection: Impervious gloves.

Respiratory protection: 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. Wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Brown	Physical state:	Powder
Odor:	None	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):	No data available
Vapor density (Air=1):	Non-volatile	Vapor pressure (mmHg):	No data available
Evaporation Rate (Water = 1)	Non-volatile	Water solubility:	Insoluble
VOC content (%)	0		

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions.

Polymerization Will not occur.

Hazardous decomposition products: No decomposition if stored normally. 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

Component information, if any, is listed below

Chromium(III) oxide

LD50s and LC50s: Oral LD50 Rat:>1000 mg/kg;
Dermal LD50 Rat:>2000 mg/kg;
Inhalation LC50 Rat: >2.01 mg/L/4H;

12. ECOLOGICAL INFORMATION

Aquatic toxicity: No data is available on the product itself. Information given is based on data on the components and the ecotoxicology of similar products.

Persistence and degradability: No information available.

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

DOT (U.S.)

Proper shipping name: Not regulated.

14. TRANSPORT INFORMATION

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:
Zinc Oxide (30 - 40%)	1.0 % de minimis concentration (Chemical Category N982)
Chromium(III) oxide (30 - 40%)	0.1 % de minimis concentration (Chemical Category N090) 1.0 % de minimis concentration (Chemical Category N090)

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
Zinc Oxide	Listed (NJRTK) Listed (PARTK)
Chromium(III) oxide	Listed (NJRTK) Listed (PARTK)

Canadian WHMIS

WHMIS hazard class: D2B Toxic materials

Canadian Ingredient Disclosure List (IDL):

Components	Canada - WHMIS Ingredient Disclosure:
Zinc Oxide	1
Chromium(III) oxide	1

International Inventories

TSCA 8(b): Listed or exempt.
Canadian DSL/NDSL list All ingredient(s) are listed on the DSL or NDSL
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

Disclaimer: 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