



Distributed by:
 Laguna Clay Company
 14400 Lomas Ave
 City of Industry, CA 91746
 1-800-4Laguna
 info@lagunaclay.com
 www.lagunaclay.com



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

MATERIAL SAFETY DATA SHEET

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

Product Name: 4846A Gray Spersastain **Date of Preparation:** 12/21/2011
 DRM100LB
Chemical Family: Inorganic Pigment
CAS-No.: Mixture
Product Code: 1133516

2. HAZARDS IDENTIFICATION

Emergency Overview

Warning

May cause respiratory tract, eye and skin irritation. May cause allergic skin or respiratory reaction. Avoid dust formation. Cancer hazard from inhalation (Nickel compounds).

		HMIS	NFPA 704
Color:	Gray	2*	2
Physical state:	Powder	0	0
Odor:	Odorless	0	0
		E	

Potential Health Effects

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

Eye contact: May cause slight irritation.

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

Inhalation: May cause irritation of respiratory tract. May cause allergic respiratory reaction.

Ingestion: May irritate digestive tract.

Chronic toxicity: Excessive inhalation of dust may cause chemical pneumonitis, cyanosis, and pulmonary edema. Respirable crystalline silica has been classified as a Group I (sufficient evidence in humans for carcinogenicity) carcinogenic by IARC and is listed by NTP as a substance which may reasonably be anticipated to be a carcinogen. Long term inhalation causes lung damage (silicosis and cancer). Suspect cancer hazard (cobalt compound). Inhalation of nickel and nickel compounds is associated with nasal and lung damage and cancer.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Zirconium Silicate	14940-68-2	80 - 90%
Cobalt nickel grey periclase	68186-89-0	10 - 20%
Quartz silica	14808-60-7	1 - 5%
Silica, fumed	112945-52-5	1 - 5%

This product contains trace quantities of naturally occurring radioactive uranium, thorium and radium (<0.02% total). Overexposure by inhalation to respirable dusts containing uranium, thorium and radium may cause cancer, however, observance of the OSHA limit for respirable dusts of 5 mg/m³ will ensure the use of this product to be well below the regulatory limits established for these components.

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 not breathing, give artificial respiration. If symptoms persist, call a physician.
Ingestion:	Drink plenty of water. Consult a physician if necessary. Do not induce vomiting.
Notes to physician:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash point (°C):	Non combustible
Suitable extinguishing media:	The product itself does not burn. 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

Personal precautions:	Avoid dust formation. Evacuate area of all unnecessary personnel. Avoid contact with skin, eyes and clothing. 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.
Methods for cleaning up:	Wear personal protective equipment. Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly. Dispose of promptly.

7. HANDLING AND STORAGE

Handling:	Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid contact with skin, eyes and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Provide appropriate exhaust ventilation at places where dust is formed. Use only in well-ventilated areas.
Storage:	Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Minimize exposure in accordance with good hygiene practice.

Components	OSHA	ACGIH
Zirconium Silicate	5 mg/m ³ TWA Zr	10 mg/m ³ STEL Zr 5 mg/m ³ TWA Zr
Quartz silica	Listed	0.025 mg/m ³ TWA respirable fraction

Engineering measures:	Ensure adequate ventilation, especially in confined areas.
Eye protection:	Safety glasses with side-shields.
Skin and body protection:	Lightweight protective clothing.
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. Wear NIOSH approved respirator to limit exposure to NORM. In case of insufficient ventilation wear suitable respiratory equipment . Seek professional advice prior to respirator selection and use.
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:	Gray	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):	No data available
Vapor density:	Non-volatile	Vapor pressure :	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:	None under normal use.
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
Chronic Toxicity:	Contains crystalline silica which causes silicosis and lung cancer.
Carcinogenic Effects:	Respirable crystalline silica has been classified as a Group I (sufficient evidence in humans for carcinogenicity) carcinogenic by IARC and is listed by NTP as a substance which may reasonably be anticipated to be a carcinogen. Crystalline silica is also a known cause of silicosis, a non-cancerous lung disease caused by excessive exposure to crystalline silica. IARC has identified Cobalt and Cobalt compounds as "possibly carcinogenic" as a group. IARC made the overall evaluation that "Nickel compounds are carcinogenic to humans (Group 1)" on the basis of the combined results of epidemiological studies, carcinogenicity studies in experimental animals, and several types of other relevant data.
Target Organ Effects:	Silica: Respiratory system. Cobalt compound: Skin, respiratory system. Nickel compounds: Lungs, skin.

Component information, if any, is listed below

Cobalt nickel grey paricase

OSHA - Select Carcinogens:	Present
NTP:	Known Human Carcinogen

Cobalt nickel grey paricalse

IARC - Group 1: Listed

IARC - Group 2B: Listed

Quartz silica

LD50s and LC50s: Oral LD50 (Rat) = 500 mg/kg

OSHA - Select Carcinogens: Present

NTP: Known Human Carcinogen

IARC - Group 1: Listed

Silica, fumed

LD50s and LC50s: Oral LD50 (Rat) = 3160 mg/kg

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:** Not determined**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. This product contains Naturally Occuring Radioactive Materials (NORM). Consult and comply with current regulations.**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	U.S. - CERCLA/SARA - Section 313 - Emission Reporting
Nickel compounds (5 - 10%)	0.1 % de minimis concentration
Cobalt compounds (1 - 5%)	0.1 % 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	PARTK:
Nickel compounds	Listed (PARTK)
Cobalt compounds	Listed (PARTK)

Components	NJRTK:
Quartz silica	Listed (NJRTK)
Nickel compounds	Listed (NJRTK)
Cobalt compounds	Listed (NJRTK)

Components	State Regulation - CA Prop65
Quartz silica	Carcinogen
Nickel compounds	Carcinogen
Cobalt compounds	Carcinogen
Zirconium Silicate	Radionuclides

Canadian WHMIS

WHMIS hazard class: D2A Very toxic materials

Canadian Ingredient Disclosure List (IDL):

Components	Canada - WHMIS Ingredient Disclosure:
Quartz silica	1
Nickel compounds	0.1
Cobalt compounds	0.1
Zirconium Silicate	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):	One or more ingredient(s) are not on the PICCS list.
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.

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