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MATERIAL SAFETY DATA SHEET

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

Product Name: 41367A Green Spersastain **Date of Preparation:** 12/21/2010
Chemical Family: DRM100LB
CAS-No.: Inorganic Pigment
Product Code: Mixture
 1133445

2. HAZARDS IDENTIFICATION

Emergency Overview

Caution

May cause respiratory tract, eye and skin irritation. Avoid dust formation.

		HMIS	NFPA 704
Color:	Green	1	1
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.

Inhalation: May cause irritation of respiratory tract.

Ingestion: May irritate digestive tract.

Chronic toxicity: No known effects under normal conditions of use. Excessive inhalation of dust may cause chemical pneumonitis, cyanosis, and pulmonary edema. Suspect cancer hazard (cobalt compound).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Chromium(III) oxide	1308-38-9	50 - 60%
Aluminum hydroxide	21645-51-2	20 - 30%
Carbonic acid, magnesium salt (1:1)	546-93-0	1 - 5%
Zinc Oxide	1314-13-2	1 - 5%
Silica, fumed	112945-52-5	1 - 5%
Cobalt hydroxide oxide	12016-80-7	1 - 5%
Cobalt tetroxide	1308-06-1	1 - 5%

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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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:	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:	Use personal protective equipment. Avoid dust formation. Evacuate area of all unnecessary personnel. Avoid contact with skin, eyes and clothing. 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
Chromium(III) oxide	0.5 mg/m ³ TWA Cr	0.5 mg/m ³ TWA Cr
Aluminum hydroxide	Not established	1 mg/m ³ TWA respirable fraction
Carbonic acid, magnesium salt (1:1)	15 mg/m ³ TWA total dust 5 mg/m ³ TWA respirable fraction	Not established
Zinc Oxide	15 mg/m ³ TWA	10 mg/m ³ STEL respirable fraction 2 mg/m ³ TWA respirable fraction
Cobalt hydroxide oxide	Not established	0.02 mg/m ³ TWA Co
Cobalt tetraoxide	0.1 mg/m ³ TWA (as Co)	0.02 mg/m ³ TWA Co

Engineering measures:	Ensure adequate ventilation, especially in confined areas.
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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. In case of insufficient ventilation wear suitable respiratory equipment . Seek professional advise prior to respirator selection and use. Use NIOSH approved respirator when ventilation is inadequate.
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:	Green	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 (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:	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
Carcinogenic Effects:	IARC has identified Cobalt and Cobalt compounds as "possibly carcinogenic" as a group.
Target Organ Effects:	Cobalt compound: Skin, respiratory system.

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;
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Cobalt hydroxide oxide

OSHA - Select Carcinogens:	Present
IARC - Group 2B:	Listed

Cobalt tetroxide

LD50s and LC50s:	Inhalation LC50 (Rat) = 4.83 mg/L
OSHA - Select Carcinogens:	Present
IARC - Group 2B:	Listed

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.

Cobalt tetraoxide

Ecotoxicity - Fish Species Data:

96 h LC50 (Brachydanio rerio) = 136 mg/L static

Ecotoxicity - Water Flea Data:

48 h EC50 (Daphnia magna) = 136 mg/L

Ecotoxicity - Freshwater Algae Data:

72 h EC50 (Pseudokirchneriella subcapitata) = 88 mg/L

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.

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:
Chromium(III) oxide (50 - 60%)	0.1 % de minimis concentration (Chemical Category N090) 1.0 % de minimis concentration (Chemical Category N090)
Zinc Oxide (1 - 5%)	1.0 % de minimis concentration (Chemical Category N982)
Cobalt hydroxide oxide (1 - 5%)	0.1 % de minimis concentration
Cobalt tetraoxide (1 - 5%)	0.1 % de minimis concentration (Chemical Category N096)

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
Chromium(III) oxide	Listed (NJRTK) Listed (PARTK)
Carbonic acid, magnesium salt (1:1)	Listed (NJRTK)
Zinc Oxide	Listed (NJRTK) Listed (PARTK)
Cobalt hydroxide oxide	Listed (NJRTK) Listed (PARTK)
Cobalt tetraoxide	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:
Chromium(III) oxide	1
Aluminum hydroxide	1
Zinc 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):	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):	One or more ingredient(s) are not on the IECS list.
Australia (AICS):	One or more ingredient(s) are not on the AICS list.
New Zealand (NZIoC):	One or more ingredient(s) are not on the NZIoC list.

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

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