



# 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  
 CHEMTREC Australia (Sydney) +(61) - 290372994

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

**Product Name:** GS LA LMM-6018 Marking Tape 1"x50 ft roll **Date of Preparation:** 03/04/2013  
**Chemical Family:** Decorative Coating  
**CAS-No.:** Mixture  
**Recommended use:** Industrial Use Only  
**Product Code:** 1329869

## 2. HAZARDS IDENTIFICATION

### Emergency Overview

#### Warning

Avoid dust formation. Do not breathe vapours/dust. May cause respiratory tract, eye and skin irritation. May cause allergic skin or respiratory reaction. May be harmful by inhalation. Contains crystalline silica which causes silicosis and lung cancer.

<b>Color:</b> Black	<b>Health:</b>	<b>HMIS</b>	<b>NFPA 704</b>
<b>Physical state:</b> Solid	<b>Flammability:</b>	2*	2
<b>Odor:</b> Slight	<b>Physical Hazard:</b>	1	1
	<b>PPE:</b>	0	0
		B	

### Potential Health Effects

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

**Eye contact:** May cause irritation.

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

**Inhalation:** Dust or fumes from firing irritating to respiratory tract. Fumes may cause lung inflammation. May be harmful by inhalation. May cause severe allergic respiratory reaction.

**Ingestion:** May irritate digestive tract.

**Chronic toxicity:** No known effects under normal conditions of use. Excessive inhalation of fumes or dust may cause chemical pneumonitis, cyanosis, and pulmonary edema. Chronic inhalation exposure can cause lung damage. Long term inhalation causes lung damage (silicosis and cancer). 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. Suspect cancer hazard (cobalt compound).

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Iron cobalt chomite black spinel	68186-97-0	50 - 60%
Frit*		10 - 20%
Poly (N-Butyl Methacrylate)	9003-63-8	10 - 20%
Naphtha, light aromatic	64742-95-6	5 - 10%
Solvent naphtha (petroleum), heavy arom.	64742-94-5	1 - 5%
Mineral spirits	8032-32-4	1 - 5%

\* Frit, with CAS # [65997-18-4], is a mixture of inorganic chemical substances produced by rapidly quenching a molten, complex combination of materials, confining the chemical substances thus manufactured as non-migratory components of glassy solid flakes or granules. These components are present as part of the Frit.

#### 4. FIRST AID MEASURES

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

#### 5. FIRE-FIGHTING MEASURES

**Flash point (°C):** Non combustible

**Suitable extinguishing media:** Carbon dioxide (CO<sub>2</sub>). Dry chemical. Water spray mist or foam.

**Hazardous decomposition products under fire conditions:** Carbon oxides. Metal oxides.

**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. Do not breathe vapors/dust. Remove all non-essential people from the affected area. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Avoid contact with skin, eyes and clothing. Wear personal protective 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. Shovel into suitable container for disposal. Clean contaminated surface thoroughly. Dispose of promptly.

#### 7. HANDLING AND STORAGE

**Handling:**

Avoid dust formation. Do not breathe vapours/dust. 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. Wear personal protective equipment. Do not eat, drink, or smoke in areas of use or storage. Do not take internally. Wash thoroughly after handling.

**Storage:**

Keep containers tightly closed in a dry, cool and well-ventilated place.

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Exposure limits**

Minimize exposure in accordance with good hygiene practice.

Components	OSHA	ACGIH
Frit	0.5 mg/m <sup>3</sup> TWA Sb 5 mg/m <sup>3</sup> TWA Zr 5 mg/m <sup>3</sup> Ceiling Mn	0.5 mg/m <sup>3</sup> TWA Sb 5 mg/m <sup>3</sup> TWA Zr 0.2 mg/m <sup>3</sup> TWA Mn

<b>Engineering measures:</b>	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.
<b>Eye protection:</b>	Safety glasses with side-shields.
<b>Skin and body protection:</b>	Lightweight protective clothing. Keep working clothes separately. Remove and wash contaminated clothing before re-use.
<b>Hand protection:</b>	Impervious gloves. Follow the recommendations given by the manufacturer of protective gloves.
<b>Respiratory protection:</b>	In case of insufficient ventilation, wear suitable respiratory equipment. NIOSH-approved respirators should be worn where engineering controls and work practices do not reduce exposure to or below the PEL. Seek professional advice prior to respirator selection and use.
<b>Hygiene measures:</b>	Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Color:</b>	Black	<b>Physical state:</b>	Solid
<b>Odor:</b>	Slight	<b>Molecular weight:</b>	No data available
<b>Boiling point/range (°C):</b>	No data available	<b>pH:</b>	No data available
<b>Melting point/range (°C):</b>	No data available	<b>Specific gravity (Water =1):</b>	No data available
<b>Vapor density:</b>	Non-volatile	<b>Vapor pressure :</b>	No data available
<b>Evaporation Rate (Water = 1)</b>	Non-volatile	<b>Water solubility:</b>	Insoluble
<b>VOC content</b>	0		

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal conditions.
<b>Polymerization</b>	Will not occur.
<b>Hazardous decomposition products:</b>	No decomposition if stored normally. Thermal decomposition can lead to release of irritating gases and vapors. Carbon oxides. Metal oxides.
<b>Materials to avoid:</b>	None under normal use.
<b>Conditions to avoid</b>	None known.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute toxicity:</b>	Information given is based on data on the components and the toxicology of similar products
<b>Chronic Toxicity:</b>	Contains crystalline silica which causes silicosis and lung cancer.
<b>Carcinogenic Effects:</b>	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.
<b>Components</b>	<b>NIOSH - Pocket Guide - Target Organs</b>
Chromium (III) Compound	eyes skin
Chromium	eyes respiratory system skin
Cobalt	respiratory system skin
Mineral spirits	eyes CNS respiratory system skin

**Additional Target Organ Effects:** Silica: Respiratory system

**Component information, if any, is listed below**

**Iron cobalt chromite black spinel**

**IARC - Group 2B:** Listed

**Frit**

**LD50s and LC50s:** Oral LD50 (Rat) = 2000 mg/kg  
**NTP:** Known Human Carcinogen  
**NTPS. Carcinogen:** Reasonably Anticipated To Be A Human Carcinogen  
**IARC - Group 1:** Listed  
**IARC - Group 2A:** Listed  
**IARC - Group 2B:** Listed

**Solvent naphtha (petroleum), heavy arom.**

**LD50s and LC50s:** Dermal LD50 (Rabbit) = 2000 mg/kg  
Oral LD50 (Rat) = 5000 mg/kg  
Inhalation LC50 (Rat) = 590 mg/m<sup>3</sup>

**Naphtha, light aromatic**

**LD50s and LC50s:** Inhalation LC50 (Rat) = 3400 ppm  
Oral LD50 (Rat) = 8400 mg/kg  
Dermal LD50 (Rabbit) = 2000 mg/kg  
Inhalation LC50 (Rat) = 5.2 mg/L

**Mineral spirits**

**LD50s and LC50s:** Inhalation LC50 (Rat) = 3400 ppm

**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.

**Solvent naphtha (petroleum), heavy arom.**

Ecotoxicity - Fish Species Data:  
96 h LC50 (Lepomis macrochirus) = 1740 mg/L static  
96 h LC50 (Pimephales promelas) = 19 mg/L static  
96 h LC50 (Oncorhynchus mykiss) = 2.34 mg/L  
96 h LC50 (Pimephales promelas) = 41 mg/L  
96 h LC50 (Pimephales promelas) = 45 mg/L flow-through  
Ecotoxicity - Water Flea Data:  
48 h EC50 (Daphnia magna) = 0.95 mg/L  
Ecotoxicity - Freshwater Algae Data:  
72 h EC50 (Skeletonema costatum) = 2.5 mg/L

**Naphtha, light aromatic**

Ecotoxicity - Fish Species Data:  
96 h LC50 (Oncorhynchus mykiss) = 9.22 mg/L  
Ecotoxicity - Water Flea Data:  
48 h EC50 (Daphnia magna) = 6.14 mg/L

**Mineral spirits**

Ecotoxicity - Freshwater Algae Data:  
72 h EC50 (Pseudokirchneriella subcapitata) = 4700 mg/L

**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.)**

**14. TRANSPORT INFORMATION**

**Proper shipping name:** Not Regulated

**TDG (Canada)**

**Proper Shipping Name** Not Regulated

**IMDG**

**Proper Shipping Name** Not Regulated

**IATA**

**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
Chromium (10 - 20%)	1.0 % de minimis concentration
Cobalt (10 - 20%)	0.1 % de minimis concentration
Cobalt inorganic compounds (50 - 60%)	0.1 % de minimis concentration
Chromium (III) Compound (50 - 60%)	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	PARTK:
Chromium	Listed (PARTK)
Cobalt	Listed (PARTK)
Cobalt inorganic compounds	Listed
Chromium (III) Compound	Listed

Components	NJRTK:
Cobalt compounds	0520
Mineral spirits	0206
N-Butyl Methacrylate	0291
Chromium (III) Compound	2245 (1.0%)

Components	State Regulation - CA Prop65
Quartz silica	Carcinogen
Cobalt	Carcinogen

**Canadian WHMIS**

WHMIS hazard class: D2A Very toxic materials

**Canadian Ingredient Disclosure List (IDL):**

Components	Canada - WHMIS Ingredient Disclosure:
Cobalt compounds	0.1
Mineral spirits	1
Chromium (III) Compound	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):** Listed or exempt.  
**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**