

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

## MATERIAL SAFETY DATA SHEET

**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-14 Black Laser Marking **Date of Preparation:** 03/01/2013  
**CAS-No.:** Mixture  
**Recommended use:** Industrial Use Only  
**Product Code:** 1320589

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### Warning

May cause respiratory tract, eye and skin irritation. May cause allergic skin or respiratory reaction. Contains crystalline silica which causes silicosis and lung cancer. Cancer hazard from inhalation (Nickel compounds).

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

#### Potential Health Effects

**Eye contact:** Contact with eyes may cause irritation.

**Skin contact:** Prolonged skin contact may cause skin irritation. May cause allergic skin reaction.

**Inhalation:** May cause irritation of respiratory tract. May be harmful by inhalation. May cause allergic respiratory reaction.

**Ingestion:** May irritate digestive tract.

**Chronic toxicity:** 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. Inhalation of nickel and nickel compounds is associated with nasal and lung damage and cancer.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Molybdenum compound		20 - 30%
Quartz silica	14808-60-7	5 - 10%
Nickel iron chromite, black, spinel	71631-15-7	1 - 5%
Mica	12001-26-2	1 - 5%
Silica, amorphous, fumed, cryst.-free	112945-52-5	1 - 5%

The specific chemical identities are being withheld as a trade secret (29CFR1910.1200).

### 4. FIRST AID MEASURES

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<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

<b>Flash point (°C):</b>	>93 (>200°F) Method: PMCC
<b>Suitable extinguishing media:</b>	Use dry chemical, CO <sub>2</sub> , water spray or "alcohol" foam.
<b>Hazardous decomposition products under fire conditions:</b>	Carbon oxides. Heavy metal compounds.
<b>Special protective equipment for firefighters:</b>	As in any fire, wear self-contained breathing apparatus (pressure-demand, NIOSH approved or equivalent) and full protective gear

#### 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions:</b>	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.
<b>Environmental precautions:</b>	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.
<b>Methods for cleaning up:</b>	Wear personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. Clean contaminated surface thoroughly. Dispose of promptly.

#### 7. HANDLING AND STORAGE

<b>Handling:</b>	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.
<b>Storage:</b>	Keep 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
Quartz silica	0.1 mg/m <sup>3</sup> TWA (respirable dust)	0.025 mg/m <sup>3</sup> TWA respirable fraction
Mica	20 mppcf TWA	3 mg/m <sup>3</sup> TWA respirable fraction

<b>Engineering measures:</b>	Provide appropriate exhaust ventilation wherever dust, mist, vapors, 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>	Liquid
<b>Odor:</b>	Characteristic	<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>	>1.00	<b>Vapor pressure :</b>	No data available
<b>Evaporation Rate (Water = 1)</b>	<1.00	<b>Water solubility:</b>	Insoluble
<b>VOC content</b>	70%		

## 10. STABILITY AND REACTIVITY

<b>Stability:</b>	Stable at normal conditions
<b>Polymerization</b>	None under normal processing
<b>Hazardous decomposition products:</b>	Thermal decomposition can lead to release of irritating gases and vapors. Carbon oxides. Heavy metal compounds.
<b>Materials to avoid:</b>	Nitric acid.
<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 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.

<b>Components</b>	<b>NIOSH - Pocket Guide - Target Organs</b>
Quartz silica	eyes respiratory system
Mica	respiratory system
Nickel	lungs skin nasal cavities
Chromium	eyes respiratory system skin

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

### Molybdenum compound



**LD50s and LC50s:** Oral LD50 (Rat) = 2689 mg/kg  
Dermal LD50 (Rat) = 2 g/kg  
Inhalation LC50 (Rat) = 5840 mg/m<sup>3</sup>

**Quartz silica**

**LD50s and LC50s:** Oral LD50 (Rat) = 500 mg/kg  
**OSHA - Select Carcinogens:** Present  
**NTP:** Known Human Carcinogen  
**IARC - Group 1:** Listed

**Nickel iron chromite, black, spinel**

**OSHA - Select Carcinogens:** Present  
**NTP:** Known Human Carcinogen  
**IARC - Group 1:** Listed

**Silica, amorphous, fumed, cryst.-free**

**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.

**14. TRANSPORT INFORMATION**

**DOT (U.S.)**

**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
Nickel compounds (1 - 5%)	0.1 % de minimis concentration
Chromium (III) compounds (1 - 5%)	1.0 % de minimis concentration
Molybdenum compound (20 - 30%)	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:
Nickel compounds	Listed (PARTK)
Chromium (III) compounds	Listed (PARTK)
Molybdenum compound	Listed (PARTK)

Components	NJRTK:
Nickel compounds	1341
Chromium (III) compounds	0432
Quartz silica	1660

Components	State Regulation - CA Prop65
Nickel compounds	Carcinogen
Quartz silica	Carcinogen

**Canadian WHMIS**

WHMIS hazard class: D2A Very toxic materials

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

Components	Canada - WHMIS Ingredient Disclosure:
Nickel compounds	0.1
Chromium (III) compounds	0.1
Quartz silica	1
Mica	1
Molybdenum compound	1

**International Inventories**

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

