



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: GS LA LMM-6000 LASER MARKING MAT INT **Date of Preparation:** 11/15/2012
CAS-No.: Mixture
Recommended use: Industrial Use Only
Product Code: 1121574

2. HAZARDS IDENTIFICATION

Emergency Overview

Warning

Flammable liquid. Vapors may form explosive mixture with air. Vapors may travel to a source and flash back. May cause respiratory tract, eye and skin irritation.

Color: Greenish-yellow	Health:	HMIS	NFPA 704
Physical state: Paste	Flammability:	2*	2
Odor: Characteristic	Physical Hazard:	3	3
	PPE:	0	0

Potential Health Effects

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: Chronic exposure to ethanol can cause developmental damage. Long-term exposure can also cause loss of appetite, weight loss, nervousness, memory loss, mental retardation and liver damage. Combined exposure to ethanol and certain other chemicals may result in increased toxic effects.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS Number	Weight %
Mica	12001-26-2	5 - 10%
Vanadium compounds		10 - 20%
Ethanol	64-17-5	30 - 40%
Methanol	67-56-1	1 - 5%
Proprietary cellulose compound		1 - 5%
Molybdenum compounds		30 - 40%
Ethyl Acetate	141-78-6	1 - 5%

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

4. FIRST AID MEASURES

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): 13(55°F) Method: Estimated

Suitable extinguishing media: Use dry chemical, CO₂, water spray or foam.

Hazardous decomposition products: Carbon 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

Unusual hazards: Flammable. Vapors may form explosive mixture with air. Vapors are heavier than air and may spread along floors. Vapor may travel considerable distance to source of ignition and flash back.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Flammable. Remove all sources of ignition. 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. 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

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. 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 dry and tightly closed to avoid moisture absorption and contamination. Keep product and empty container away from heat and sources of ignition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits

Minimize exposure in accordance with good hygiene practice.

Components	OSHA	ACGIH
Mica	20 mppcf TWA	3 mg/m ³ TWA respirable fraction
Ethanol	1000 ppm TWA 1900 mg/m ³ TWA	1000 ppm STEL

Components	OSHA	ACGIH
Methanol	200 ppm TWA 260 mg/m ³ TWA	Skin 250 ppm STEL 200 ppm TWA
Ethyl Acetate	400 ppm TWA 1400 mg/m ³ TWA	400 ppm TWA

- Engineering measures:** 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.
- Eye protection:** Safety glasses with side-shields.
- Skin and body protection:** Lightweight protective clothing. Remove and wash contaminated clothing before re-use. Keep working clothes separately.
- Hand protection:** Impervious gloves. Follow the recommendations given by the manufacturer of protective gloves.
- Respiratory protection:** 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.
- Hygiene measures:** Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	Greenish-yellow	Physical state:	Paste
Odor:	Characteristic	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
Bulk density:	12 lb/gal	Vapor pressure :	No data available
Water solubility:	Insoluble	VOC content (%)	50

10. STABILITY AND REACTIVITY

- Stability:** Stable at normal conditions
- Polymerization** None under normal processing
- Hazardous decomposition products:** None under normal use. Thermal decomposition can lead to release of irritating gases and vapors. Carbon oxides.
- Materials to avoid:** Nitric acid.
- Conditions to avoid** Keep away from heat and sources of ignition.

11. TOXICOLOGICAL INFORMATION

- Acute toxicity:** Information given is based on data on the components and the toxicology of similar products
- Carcinogenic Effects:** The International Agency for Research on Cancer (IARC) has determined alcoholic beverages are carcinogenic to humans (Group 1) and the occurrence of malignant tumors of the oral cavity, pharynx, larynx, esophagus and liver is causally related to the consumption of alcoholic beverages in humans. Animal studies on ethanol do not provide sufficient indication of carcinogenicity.
- Target Organ Effects:** Ethyl Acetate: Eyes, skin, respiratory system.
- Component information, if any, is listed below**

Vanadium compounds**LD50s and LC50s:** Oral LD50 (Rat) = 98 mg/kg**Ethanol****LD50s and LC50s:** Inhalation LC50 (Rat) = 124.7 mg/L
Oral LD50 (Rat) = 7060 mg/kg**OSHA - Select Carcinogens:** Present**NTP:** Known Human Carcinogen**IARC - Group 1:** Listed**Methanol****LD50s and LC50s:** Dermal LD50 (Rabbit) = 15800 mg/kg
Oral LD50 (Rat) = 5628 mg/kg
Inhalation LC50 (Rat) = 64000 ppm
Inhalation LC50 (Rat) = 83.2 mg/L**Proprietary cellulose compound****LD50s and LC50s:** Oral LD50 (Rat) = 10200 mg/kg**Molybdenum compounds****LD50s and LC50s:** Oral LD50 (Rat) = 2689 mg/kg
Dermal LD50 (Rat) = 2 g/kg
Inhalation LC50 (Rat) = 5840 mg/m³**Ethyl Acetate****LD50s and LC50s:** Oral LD50 (Rat) = 5620 mg/kg
Dermal LD50 (Rabbit) = 18000 mg/kg
Dermal LD50 (Rabbit) = 20 mL/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.

Ethanol

Ecotoxicity - Fish Species Data:

96 h LC50 (Oncorhynchus mykiss) = 12.0 - 16.0 mL/L static

96 h LC50 (Pimephales promelas) = 13400 - 15100 mg/L flow-through

96 h LC50 (Pimephales promelas) = 100 mg/L static

Ecotoxicity - Water Flea Data:

48 h LC50 (Daphnia magna) = 9268 - 14221 mg/L

24 h EC50 (Daphnia magna) = 10800 mg/L

48 h EC50 (Daphnia magna) = 2 mg/L Static

Methanol

Ecotoxicity - Fish Species Data:

96 h LC50 (Lepomis macrochirus) = 13500 - 17600 mg/L flow-through

96 h LC50 (Oncorhynchus mykiss) = 18 - 20 mL/L static

96 h LC50 (Oncorhynchus mykiss) = 19500 - 20700 mg/L flow-through

96 h LC50 (Pimephales promelas) = 28200 mg/L flow-through

96 h LC50 (Pimephales promelas) = 100 mg/L static

Ethyl Acetate

Ecotoxicity - Fish Species Data:

96 h LC50 (Pimephales promelas) = 220 - 250 mg/L flow-through

96 h LC50 (Oncorhynchus mykiss) = 352 - 500 mg/L semi-static

96 h LC50 (Oncorhynchus mykiss) = 484 mg/L flow-through

Ecotoxicity - Water Flea Data:

48 h EC50 (Daphnia magna) = 560 mg/L Static

Ecotoxicity - Freshwater Algae Data:

48 h EC50 (Desmodesmus subspicatus) = 3300 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.

14. TRANSPORT INFORMATION

DOT (U.S.)

UN/ID No: UN1263
 Proper shipping name: Paint related material
 Hazard Class: 3
 Packing group: II
 ERG No: 128

TDG (Canada)

UN/ID No: UN1263
 Proper shipping name: Paint related material
 Hazard Class: 3
 Packing group: II

IMDG

UN/ID No.: UN1263
 Proper shipping name: Paint related material
 IMDG - Hazard Classifications: 3
 Packing group: II
 Ems no.: F-E, S-E

IATA

UN-No: UN1263
 Proper shipping name: Paint related material
 IATA - Hazard Classification: 3
 Packing group: II

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
Methanol (1 - 5%)	1.0 % de minimis concentration
Molybdenum compounds (30 - 40%)	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:
Methanol	Listed (PARTK)
Molybdenum compounds	Listed (PARTK)

Components	NJRTK:
Mica	Listed (NJRTK)
Ethyl Acetate	Listed (NJRTK)
Vanadium compounds	Listed (NJRTK)
Ethanol	Listed (NJRTK)
Methanol	Listed (NJRTK)
Proprietary cellulose compound	Listed (NJRTK)

Components	NJRTK:
Molybdenum compounds	Listed (NJRTK)

Canadian WHMIS

WHMIS hazard class: B2 Flammable liquid D1B Toxic materials

Canadian Ingredient Disclosure List (IDL):

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

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