

PRODUCT TRADE NAME:

LMM-6012 SCREEN PRINT MARKING MATERIAL



MATERIAL SAFETY DATA SHEET

PRODUCT: Paste
REVISION DATE: 11/27/2002
REVISION NUMBER: 1
Date Printed: 11/27/2002

1. PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED BY:
Ferro Corporation
251 West Wylie Avenue
P.O. Box 519
Washington, PA 15301
Prod Info 724-223-5900
CHEMTREC 800-424-9300

CHEMTREC number is to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

PREPARED BY: Jeff Miller
Environmental Engineer

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CAS NO: Mixture

CHEMICAL FAMILY: Decorative Coating.

PRODUCT TYPE: Laser Marking Coating.

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product contains either pigment(s) that belong to the mixed metal oxide pigment class and/or frit which is an amorphous glassy material. These ingredients have been chemically reacted at high temperatures. They consist of metal atoms and oxygen atoms arranged in unique structures; the toxicological properties have not been thoroughly investigated. A small percentage of the starting materials may remain in this product and are considered hazardous under OSHA.

The pigment and/or frit ingredient(s) contained in this product do not have exposure limit values. Exposure limit values for the only the components are listed below as a guideline for safe use of this product.

HAZARDOUS COMPONENTS

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CHEMICAL SPECIFICATION	OSHA PEL:	ACGIH TLV:
Glycol Ether 112-34-5	NE	NE
Sodium Vanadate 13718-26-8	NE	NE
Mica Group Minerals 12001-26-2	TWA: 20 mppcf	TWA: (respirable fraction): 3 mg/M3
Crystalline Silica 14808-60-7	TWA respirable dust: 0.1 mg/M3	TWA respirable dust: 0.05 mg/M3
Molybdenum Trioxide 1313-27-5	TWA Insoluble Mo compounds: 10.0 mg/M3 Soluble Mo compounds: 3.0 mg/M3	TWA 5.0 mg/M3

3. HAZARDS IDENTIFICATION

PRINCIPLE ROUTES OF EXPOSURE: Inhalation, ingestion and dermal.**The key immediate hazards are:** Skin, eye, and respiratory irritant.
Harmful if swallowed.**Effects from Acute Exposure:****EYE CONTACT :** Causes eye irritation.**SKIN CONTACT:** Causes skin irritation.**INHALATION:** Causes lung irritation.**INGESTION:** Harmful if swallowed.**AGGRAVATED MEDICAL CONDITIONS:** Respiratory.**Effects from Chronic Exposure:****CHRONIC EFFECTS/:** This product or one of its ingredients present 0.1% or more is listed as a carcinogen by NTP, IARC, or OSHA.**CARCINOGENIC INGREDIENTS:** This product contains greater than 0.1% crystalline silica. The International Agency for Research on Cancer (IARC) has determined that "there is sufficient evidence for the carcinogenicity of crystalline silica to experimental animals and limited evidence of carcinogenicity in humans. "The National Toxicology Program (NTP) Sixth Annual Report confirms this determination. It has listed crystalline silica as a substance reasonably anticipated to be a carcinogen.**OVEREXPOSURE EFFECTS:** CONTAINS MOLYBDENUM COMPOUND(S) :

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Molybdenum compounds can cause eye and respiratory irritation. They can be toxic if swallowed or inhaled based on animal studies where symptoms included anemia, loss of appetite, diarrhea, tiredness, joint pain and changes, liver and kidney damage, and lung effects.

CONTAINS VANADIUM COMPOUNDS:

Vanadium compounds are highly toxic by inhalation and ingestion. Breathing the dust or fume may cause coughing, rhinitis, bronchitis, metallic taste, and greenish discoloration of the tongue. Skin and eye irritation as well as nausea, vomiting, and diarrhea are also possible. Animal studies have shown this material to cause adverse effects on the male and female reproductive systems, various fertility measures, and the developing fetus.

CONTAINS GLYCOL ETHER SOLVENT (CAS # 112-34-5):

This glycol ether solvent can cause eye irritation and may cause skin irritation. Ingestion may cause headache, dizziness, nausea, and kidney damage.

CONTAINS CRYSTALLINE SILICA:

Crystalline silica can cause silicosis, a lung disease characterized by coughing, wheezing, impaired lung function and increased sputum production. This damage can be progressive and may cause death. May cause cancer following repeated and prolonged inhalation of the fine dust. Smoking aggravates these effects. Skin and eye contact may cause irritation due to mechanical abrasion.

4. FIRST AID MEASURES

INGESTION:

If swallowed, give at least 3-4 glasses of water, but do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

SKIN:

For skin contact, immediately wash with large amounts of running water, and soap if available, for 15 minutes. Remove contaminated clothing and shoes. Discard or decontaminate clothing and shoes before reuse. Get medical attention if skin irritation develops.

INHALATION:

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

EYES:

For eye contact, immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention.

NOTES TO PHYSICIAN:

None specified.

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5. FIRE FIGHTING MEASURES

OSHA FLAMMABILITY CLASS: NON-COMBUSTIBLE

FLASH POINT: 234 F

Flashpoint Method: Pensky-Martin Closed Cup

Lower Explosive Limit: Not Available

Upper Explosive Limit: Not Available

EXTINGUISHING MEDIA: Carbon Dioxide, Dry Chemical, Foam or Water Mist.

FIRE FIGHTING PROCEDURES: Fire-Fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.

Use water spray to cool nearby containers and structures exposed to fire.

UNUSUAL HAZARDS: Decomposition and combustion products may be toxic.

Keep away from heat and flame.

6. ACCIDENTAL RELEASE MEASURES

SPILL PROCEDURES: Wear appropriate protective equipment. Avoid the generation of dust. Absorb spill with inert material and place in closable container(s) for disposal. Eliminate ignition sources.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in a cool, dry location away from incompatible materials.

NOTES ON HANDLING INFORMATION: Avoid contact with heat, spark, or flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Adequate ventilation should be provided to keep dust and vapor concentrations below acceptable exposure limits. Discharge from the ventilation system should comply with the applicable air pollutions control regulations. Eliminate ignition sources.

EYE PROTECTION: Wear safety glasses or goggles to protect against exposure.

PROTECTIVE GLOVES: Use gloves as a standard industrial handling procedure.

RESPIRATORY PROTECTION: Appropriate respiratory protection is required when exposure to airborne

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contaminant is likely to exceed acceptable limits. Respirators should be selected and used in accordance with OSHA Subpart I (29 CFR 1910.134) and manufacturer's recommendations.

OTHER PERSONAL PROTECTIVE EQUIPMENT:

Wear protective clothing such as impervious/plastic overalls or aprons with sleeve covers.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Yellow Paste

BOILING POINT: Not Available

VAPOR DENSITY (AIR=1): Heavier than air.

EVAP. RATE(BUTYL ACETATE=1): Slower than n-Butyl Acetate.

VOC (EPA METH.24): 38 wt.%

BULK DENSITY (wt/gal): 14.5 lbs/gal.

SOLUBILITY (in water): Insoluble.

10. STABILITY AND REACTIVITY

STABILITY DATA: STABLE

POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide and depending on conditions, some hydrocarbon fragments may also be formed.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing agents.

CONDITIONS/HAZARDS TO AVOID: See "Incompatibility"

11. TOXICOLOGICAL INFORMATION

Toxicology data of some components is available upon request. Contact Product Safety Specialist at (724) 223-5900.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: No data at this time

CHEMICAL FATE INFORMATION: No data at this time.

PERSISTENCE/DEGRADABILITY: No data at this time.

APPRAISAL: No data at this time.

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MOBILITY: No data at this time.

13. DISPOSAL CONSIDERATIONS

DISPOSAL OF WASTE METHOD: Dispose in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

DOT Shipping Name: DOT data is available upon request. Contact Responsible Care Manager at (724) 223-5929.

15. REGULATORY INFORMATION

SARA SECTION 302: None Found

SARA (311, 312) HAZARD CLASS: ACUTE HEALTH HAZARD

CHRONIC HEALTH HAZARD

SARA 313 Title III Toxic Chemical List:

The following chemicals are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

38	%	Glycol ethers	38	%
48	%	Molybdenum Trioxide	48	%

Pennsylvania Right-to-Know Act:

Mica Group Minerals	12001-26-2	H
Sodium Vanadate	13718-26-8	X
Glycol Ether	112-34-5	H

E = Pennsylvania Environmental Hazardous Substance.

S = Pennsylvania Special Hazardous Substance.

H = Pennsylvania Hazardous Substance.

X = Not on the Pennsylvania Hazardous Substance List.

TSCA Inventory Status: This product (and/or all of its components) is in compliance with the U.S. EPA Toxic Substance Control Act, TSCA, (15 U.S.C. 2604).

16. OTHER INFORMATION

Revisions: The Format has been changed to meet the requirements of the new ANSI Standard Z400.1.

LABEL INFORMATION:

WARNING!

Skin, eye, and respiratory irritant.

Contains crystalline silica which can cause lung damage, including cancer.

Harmful if swallowed.

Avoid contact with eyes, skin and clothing.

Avoid breathing dust, mist or vapor.

Keep away from food products.

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Wash thoroughly after handling and before eating, drinking or using cosmetic or tobacco products or toilet facilities.

Use with adequate ventilation.

Keep container closed when not in use.

FIRST AID: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water. Remove contaminated clothing. Get medical attention.

IN CASE OF FIRE: Use water, dry chemical or carbon dioxide.

IN CASE OF SPILL: Soak up with inert absorbent and dispose in accordance with federal, state and local regulations.

FOR INDUSTRIAL USE ONLY.

DEFINITIONS AND ABBREVIATIONS :

ACGIH = American Conference of Governmental Industrial Hygienists

C (CEIL) = The concentration that shall not be exceeded during any part of the working exposure.

CAS # = Chemical Abstracts Service Registry Number

EPA = Environmental Protection Agency

IARC = International Agency for Research on Cancer

N/AP = Not Applicable

N/AV = Not Available

NIOSH = National Institute for Occupational Safety and Health

NTP = National Toxicology Program

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

SARA = Superfund Amendments and Reauthorization Act

STEL = Short Term Exposure Limit. Usually a 15 minute time weighted average exposure that should not be exceeded at any time during a workday.

TLV = Threshold Limit Values

TSCA = Toxic Substance Control Act

TWA = Time Weighted Average. Exposure concentration for a normal 8 hour work day and a 40 hour work week.

VOC = Volatile Organic Content

DISCLAIMER:

The information and recommendations contained in this Material Safety Data Sheet (MSDS) 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 MSDS ***