



MATERIAL SAFETY DATA SHEET

PRODUCT: Paste
REVISION NUMBER: 2

REVISION DATE: 08/27/2003
Date Printed: 08/04/2004

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

Use the CHEMTREC telephone number only in the event of chemical emergencies.

PREPARED BY: Jeff Miller
Environmental Engineer

PRODUCT CODE: LMM-6000
PRODUCT TRADE NAME: LMM-6000 METAL MARKING PASTE

CAS NO: Mixture

CHEMICAL FAMILY: Decorative Coating

PRODUCT TYPE: Laser Marking Coating

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product does not have exposure limit values. Exposure limit values for some of the components are listed below as a guideline for safe use of this product.

HAZARDOUS COMPONENTS

INGREDIENTS/CAS #	OSHA PEL:	ACGIH TLV:
Mica Group Minerals 12001-26-2	TWA: 20 mppcf	TWA: (respirable fraction): 3 mg/m ³
Molybdenum Trioxide 1313-27-5	TWA Insoluble Mo compounds: 10.0 mg/m ³ Soluble Mo compounds: 3.0 mg/m ³	TWA 5.0 mg/m ³
Crystalline Silica 14808-60-7	TWA respirable dust: 0.1 mg/m ³	TWA respirable dust: 0.05 mg/m ³
Ethyl Alcohol 64-17-5	TWA: 1000 ppm; TWA: 1900 mg/m ³	TWA: 1000 ppm; TWA: 1880 mg/m ³
Vanadium Compound NONE	Ceil respirable dust: 0.5 mg/m ³ ; Ceil fume: 0.1 mg/m ³	TWA 0.05 mg/m ³
Methyl Alcohol 67-56-1	TWA: 200 ppm; 260 mg/m ³	TWA: 200 ppm; 262 mg/m ³

3. HAZARDS IDENTIFICATION

PRODUCT TRADE NAME: LMM-6000 METAL MARKING PASTE

PRINCIPLE ROUTES OF EXPOSURE: Inhalation, ingestion and dermal.

The key immediate hazards are:

Flammable Liquid.

Skin, eye, and respiratory irritant.

Harmful if swallowed or inhaled.

Effects from Acute Exposure:

EYE CONTACT : Causes eye irritation.
SKIN CONTACT: Causes skin irritation.
INHALATION: Causes lung irritation.
INGESTION: May be harmful if swallowed.

AGGRAVATED MEDICAL CONDITIONS: Respiratory

Effects from Chronic Exposure:

CHRONIC EFFECTS /CARCINOGENICITY: 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.

PRODUCT TRADE NAME: LMM-6000 METAL MARKING PASTE

OVEREXPOSURE EFFECTS:

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.

CONTAINS MOLYBDENUM COMPOUND(S) :

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 DENATURED ALCOHOL:

Overexposure to denatured alcohol can cause serious health effects such as liver toxicity and central nervous system depression ("drunk"). Use during pregnancy may cause fetal alcohol syndrome. Inhalation may cause headache and respiratory irritation. Skin and eye irritant. Denaturants are added to discourage ingestion and will cause nausea and vomiting.

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 METHANOL:

Ingestion or prolonged inhalation of methyl alcohol (methanol) can cause headache, nausea, vomiting, dizziness, visual disturbances, blindness, liver damage, and death. Irritating to skin and eyes.

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 if irritation develops.

NOTES TO PHYSICIAN: None specified.

5. FIRE FIGHTING MEASURES

OSHA FLAMMABILITY CLASS: FLAMMABLE

FLASH POINT (°F): 55 F

Flashpoint Method: Pensky Martin Closed Cup

Lower Explosive Limit: Not Available

Upper Explosive Limit: Not Available

EXTINGUISHING MEDIA: Carbon Dioxide, Dry Chemicals, Foam

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, sparks 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: Keep container closed when not in use. Use in a well ventilated area to prevent irritation by vapors.

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 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.

PRODUCT TRADE NAME: LMM-6000 METAL MARKING PASTE

OTHER PERSONAL PROTECTIVE EQUIPMENT: Wear protective clothing such as impervious/plastic overalls or aprons with sleeve covers.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Greenish-yellow Paste

BOILING POINT: Not Available

VAPOR DENSITY (AIR=1): Heavier than air

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

VOC, Wt.%(EPA METH.24): 50

BULK DENSITY: 11.7

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: Keep away from heat, sparks and flame.

11. TOXICOLOGICAL INFORMATION

Tox Statement: Toxicology data of some components is available upon request. Contact Safety, Health, & Environmental Manager 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.

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: PAINT RELATED MATERIAL
DOT HAZARD CLASS: 3
DOT LABEL(S): FLAMMABLE LIQUID
UN/NA NUMBER: UN1263
PACKING GROUP: PG II

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.

3	%	Vanadium	1	%
35	%	Molybdenum Trioxide	35	%
	%	Methanol	1	%
	%	Methyl Isobutyl Ketone	< 1	%

Pennsylvania Right-to-Know Act:

Mica Group Minerals	12001-26-2	H
Methyl Alcohol	67-56-1	E
Ethyl Alcohol	64-17-5	H
Molybdenum Compound	Proprietary	E
Water	7732-18-5	X

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).
This product and all of its components is listed on the DSL inventory.

16. OTHER INFORMATION

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

PRODUCT TRADE NAME: LMM-6000 METAL MARKING PASTE

LABEL INFORMATION:

DANGER!

Flammable liquid.

Skin, eye, and respiratory irritant.

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

Harmful if swallowed or inhaled.

Keep away from heat, sparks and flame.

Avoid contact with eyes, skin and clothing.

Do not breathe dust.

Keep away from food products.

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

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.

TLV = Threshold Limit Values

TSCA = Toxic Substance Control Act

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

VOC = Volatile Organic Content

DISCLAIMER: The information contained in this Material Safety Data Sheet (MSDS) has 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 guarantee 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 the regulatory compliance obligations under any applicable federal or state laws.

*** END OF MSDS ***