

TECHNICAL INFORMATION LASER MARKING PRODUCT



LMM-6000 Metal Marking Material

1.0 Product Description

LMM-6000 is a laser marking material for metals. LMM-6000 is ethanol based, which allows for a fast drying time. It can be used on a variety of bare metal substrates including stainless steel, brass, aluminum, titanium, tin, nickel and the like. *LMM-6000 will not work on metals with a lacquered coating.*

2.0 Product Characteristics

| 2.1 Physical Properties | |
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| Appearance | Yellowish gray colored, thick, pancake batter-like consistency. |
| Density | 11.6 – 12.3 pounds/gallon |
| Flash Point | <66°F / <18.9°C |
| Drying Rate | Fast |
| 2.2 Strengths of Product | |
| Versatility and ease of application. High quality, high contrast, durable marks on a variety of metal substrates. Dries to a tough film that can be handled. Coated parts can be stacked. | |
| 2.3 Recommended Application Parameters | |
| Application Methods | Spray gun, airbrush, paintbrush, or foam brush. |
| Application | Clean surface of metal so that it is free of any lubricants or oils. LMM-6000 must be applied with an even and thin coat to ensure a consistent mark. |
| Wet Film Thickness | 0.5 – 1.0 wet mils. |
| Coverage | 500 grams of LMM-6000 will cover approximately 6000 square inches. |
| Thinner | Ethanol, denatured alcohol, grain alcohol, methyl ethyl ketone (MEK) or acetone. Isopropyl alcohol or water should be avoided. |
| Recommended reduction | For brushing or spraying, a 1:1 mix by volume of LMM-6000 to ethanol. MEK or acetone can be used at a 3:1 mix by volume of LMM-6000 to thinner. |
| Suggested Cleaning Solvents | Wash with water or a wet towel. |

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| 2.4 Curing/Drying of Product | |
| Drying Method | Air dry, radiant heat, hair dryer or convection oven. |
| Drying Parameters | Typically air dries in about 2 minutes, can be sped up by force drying. |
| 2.5 Laser Marking of Product | |
| Laser Marking Method | CO ₂ , YAG or Fiber laser |
| Recommended Starting Point for Settings | CO ₂ : 90-100% power (35 watt laser) 15-30% speed 500 DPI / 500 PPI YAG: 20-25 watts 10-20 inches/sec speed |

2.6 Application Notes

For optimum mark quality, a thin even coat of LMM-6000 should be used. If the material is applied too thin, the marks will not be as dark. If the material is applied too thick, more power will be required to make the mark. Applying LMM-6000 may require practice to achieve the right coverage. It is also important to allow the coating to dry thoroughly.

LMM-6000 is formulated to be thick to prevent settling. It may be necessary to thin the paste before using. Application method will determine the amount of thinner required, along with room temperature and humidity. The ratios recommended above should be sufficient. Keep in mind that the more the material is thinned, the less active ingredients are being applied. Overthinning will result in a lighter mark than properly thinned and applied LMM-6000.

2.7 Marking Notes

Marking may require some trial and error to optimize your laser with a particular substrate. Keep in mind that all lasers react differently depending on the substrate. Also, if you are working on a "softer" metal substrate such as aluminum or brass, more power and/or slower speed may be needed. Again, you may need to run several tests to optimize the setting for your laser.

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3.0 Product Preparation

Insure that the product has been well mixed prior to use. Some settling may occur during long storage. Paste temperature should be equivalent to your room temperature prior to measuring viscosity or application.

4.0 Storage Recommendations

Product must be stored in cool and dry conditions. The storage temperatures should not be below 5°C and not exceed 35°C. Settling may occur if stored for long periods of time. Before use, products must be stirred thoroughly. Partly used containers must be tightly sealed after use. If stored as recommended, a minimum shelf life of six months after the production date is guaranteed.

5.0 Contact Information

Questions about properties of this product, application techniques or laser settings should be directed to:

Dave Smith (724) 250-5503
Marketing Manager

Steve Whitfield (724) 250-5523
Technical Service Representative

Sean Weir (724) 229-5161
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