



## **LMM-6000: Frequently asked Questions**

### **Q. How do I apply LMM-6000?**

We recommend that LMM-6000 be applied by spraying directly onto the substrate to be marked. LMM-6000 can also be applied by brushing or painting, but care must be taken to ensure that an even coat is applied. Any variation in the coating such as brush marks may translate into variation in the final mark appearance. Spraying will give you the best results and the most evenly applied coating.

### **Q. How much LMM-6000 do I apply?**

You should apply only enough LMM-6000 to hide the metal surface. Applying more LMM-6000 will result in having to use more laser power to create marks; it will not make the marks darker.

### **Q. How do I thin LMM-6000?**

LMM-6000 can be thinned with denatured alcohol, ethanol, acetone or methyl ethyl ketone (MEK). Add the thinner to the LMM-6000 and stir or shake thoroughly. Isopropyl alcohol should be avoided.

### **Q. How much thinner do I need?**

LMM-6000 can be used as is for brushing but should be thinned as needed to apply by spray. We recommend a maximum thinning ratio of 1 part LMM-6000 to 1 part ethanol for spraying. Ethanol can also be added to help aid in brushing, it will help brush marks flow out. MEK and acetone are stronger solvents; therefore less thinner will be needed when using these solvents.

### **Q. How do I clean LMM-6000 off of the metal?**

LMM-6000 can be cleaned using plain water.

### **Q. What metals does LMM-6000 work on?**

LMM-6000 has been tested on stainless steel, aluminum, brass, copper, nickel, silver, and titanium. LMM-6000 will not work on metals that have a coating or protective clear lacquer.

### **Q. How long will the marks last? How tough are they?**

Marks made with LMM-6000 are permanent. Marks made with LMM-6000 are

generally considered as tough as the metal they are made on. Physical testing has shown them to be resistant to many common strong acids, bases, organic solvents and extreme heat or cold. LMM-6000 also has good salt spray resistance, scratch resistance and QUV resistance.

**Q. How high or thick are the marks?**

Marks made with LMM-6000 have been examined by a scanning electron microscope and have been found to be approximately 10  $\mu$ m or 0.0004 inches (0.4 mil) high.

**Q. Can I reuse LMM-6000?**

LMM-6000 should not be used if it has dried out. LMM-6000 also should not be reused by washing it off of a part and respraying the washed off material. Reused LMM-6000 will not produce a high quality mark. Performance characteristics will also be affected.

**Q. What kind of laser do I need?**

LMM-6000 can be used with CO<sub>2</sub>, YAG, or Fiber laser marking systems.

**Q. How much power should I use?**

The power settings that LMM-6000 will work best at vary depending on the laser being used. For example, with a 35 watt CO<sub>2</sub> laser, marking on stainless steel requires the use of 100% power at a write speed of 4-8 inches per second. Marking on aluminum requires 100% power at a write speed of 1-4 inches per second with the same laser. A more powerful laser will be able to make the same mark using less power or writing faster.

Also, aluminum, copper, brass and other soft, heat conductive metals require higher powers and slower writing speeds. These metals will conduct heat away from the marking area faster than steel, thus requiring more heat (power) to make a mark. Your power settings will vary depending on the laser used and the substrate being marked, so some experimentation may be necessary to achieve the best mark.

**Q. Does LMM-6000 work on glass?**

No. LMM-6000 is not to be used on glass surfaces. It is designed to work only on metal surfaces. CerMark also offers the LMC series products for laser marking on glass and ceramic substrates.

**Q. Will LMM-6000 work on coated metals?**

No. If the metal has a protective coating on it, the coating must be removed before it can be marked. The protective coating will interfere with LMM-6000's ability to bond to the surface of the metal.

**Q. Will LMM-6000 work on anodized metals?**

LMM-6000 has generally been found to not work on anodized metals, but in some cases satisfactory results have been reported. We recommend experimentation if possible to determine if LMM-6000 will work in your particular application. The CerMark LMM-12, LMM-6046 and LMM-6018 tape can be used on anodized surfaces.

**Q. How many marks can I get from 500 grams of LMM-6000?**

When thinned and used as recommended, 500 grams of LMM-6000 should provide approximately 6000 square inches of coverage. The number of marks you can make will depend on the size of the mark and how much material you apply to the substrate.

**Q. Can I get blacker marks with a thicker coat of LMM-6000?**

No. Additional LMM-6000 film thickness will only result in more power being needed to make a mark; it will not make the marks any darker.

**Q. What other colors for metal are currently available?**

Currently we only offer a black mark on metal substrates. Research efforts are underway to develop additional colors for metal.