CerMark™ LMM6000
Black for Metal (General Purpose)

Recommended use:
LMM6000, a CerMark™ product, is one of TherMark's two general purpose laser marking inks and is recommended for creating black marks on a variety of metals. LMM6000 has been specially designed to dry in a hard coat which can be handled prior to laser marking without rubbing off. This allows parts coated with LMM6000 to be stored, moved or stacked prior to laser marking.

If you are interested specifically in marking stainless steel, you should choose LMM6000, as it makes the darkest marks on this substrate. However, the process window for LMM6000 is somewhat narrow, so if ease of use is a concern, LMM14 may be a better option and its marks on stainless are not significantly different from LMM6000.

Recommended substrates:
LMM6000 is a fairly flexible product which is recommended for many metals. The following list is made up of substrates on which LMM6000 works well. This list is not exhaustive, however, so if your substrate does not appear on the list, this does not mean LMM6000 will not mark it.

Stainless Steel	Chrome Plating
Stainless Steel - Bright Annealed	Nickel Plating
Galvanized Steel	Gold Plating
Brass	Silver Plating
Aluminum	Titanium
Copper	Pewter

Lasers that work:
LMM6000 works equally well with CO_2 and solid state lasers.

Dilution:
LMM6000 will need to be diluted differently depending on how you plan to apply it.

- **Air brush application:** Ratio of 1:3 (1 part in volume of LMM6000, 3 parts in volume of denatured alcohol) is recommended. Please refer to your air brush manual for information about material thickness for your model type.

- **Foam brush (hand) application:** Ratio of 1:2 (1 part in volume of LMM6000, 2 parts in volume of denatured alcohol) is recommended.

For more detailed information on dilution, please visit www.thermark.com.

Application methods:
Please make sure that the surface to be marked is free and clear of oils, cleaning agent films, dust, and lacquer coating.

- **Aerosol application:** Shake the aerosol can thoroughly before use to achieve a homogenous suspension of marking material inside the can. When applying LMM6000 from an aerosol can, the resulting coating of LMM6000 should be 0.8-1 mil thick (20-25 µm). Spray uniformly at a 10" distance from the surface and move the nozzle from one side to the other covering the whole substrate area. Start spraying away from the area to be marked and move towards the opposite side and past the target area. Over-spraying before and after the target area allows constant velocity of movement and will help provide an even coating on the substrate. Make sure the bare metal is not visible underneath. If necessary spray one or two more times. In general 1-2 strokes are enough to generate the desired coating.

- **Air brush application:** When airbrushing use the above mentioned procedure for aerosol application.

- **Foam brush (hand) application:** When hand applying, the resulting coating of LMM6000 should be 0.8-1 mil thick (20-25 µm). Use about a 1" wide foam brush and soak less than ¼" of the brush with LMM6000. There is no need to soak more than that, otherwise the ink may splash and result in an uneven coat thickness. Apply with smooth, even strokes.

  Note: Aerosol and air brush application are both preferred over foam brush application. It can be challenging to achieve the smooth, even coating of laser marking material necessary for optimal marks when using a foam brush. We only recommend foam brush application if you do not have an air brush or are coating a small surface area.

For more detailed information on application, please visit www.thermark.com.

Drying time & methods:
If left to air dry, LMM6000 is normally fully dry within 3 to 5 minutes. If air drying takes too long, however, a hair drier or forced air heater may be used to speed up the process. LMM6000 can be fully dried with an average household hair dryer in less than 15 sec.

Product Appearance:
LMM6000 is yellowish/tan in color and has the consistency of thick pancake batter. It should not separate upon standing, but it is still advisable to stir LMM6000 prior to use.

Once applied to the substrate and dry, LMM6000 will be a yellowish/tan paint-like coating.

Shipping options:
All LMM6000 products (aerosol and ink) are considered by the US Department of Transportation (DOT) to be "ORM-D" or "Consumer Commodity". These products may be shipped via ground or air. TherMark does not add any additional charges for ground shipping of this product, but LMM6000 is subject to an additional $40 hazardous materials packing fee if shipped via air. This is due to regulations around the shipping of pressurized cans and alcohol-based chemicals on airplanes.

Product storage:
All LMM6000 products should be stored between 40ºF (5ºC) and 95ºF (35ºC) in a dark, dry place. Aerosol cans should be stored on their side rather than their bottom, as the LMM6000 material can settle and clump together inside the can. Side storage makes it easier to achieve even dispersion when the cans are shaken.

Disposal:
LMM6000 is an alcohol-based material. After laser bonding, any excess, un-bonded material can be washed off the substrate and down the drain into your normal water/sewer waste area.

Unused aerosol cans that are still pressurized should be de-pressurized in a well-ventilated area (the propellants should be completely expelled from the can) and then can be disposed of in your regular trash and solid waste area.

Unused containers of liquid ink/paste should be opened, the alcohol base evaporated into a well-ventilated area, and once only solids remain in the container, the container with solids can be safely disposed of in your regular trash and solid waste area.

Availability:
LMM6000 comes in 5 sizes: for pricing and availability, please contact TherMark.

LMM6000.A12	12 oz aerosol, up to 1,200 sq/in
LMM6000.50	50 gm liquid ink, up to 1,000 sq/in
LMM6000.250	250 gm liquid ink, up to 5,000 sq/in
LMM6000.500	500 gm liquid ink, up to 10,000 sq/in
LMM6000.1000	1,000 gm liquid ink, up to 20,000 sq/in

* Product coverage in above table assumes proper application (dilution/coating thickness).