TherMark™

The TherMark™ technology quickly produces permanent, high contrast, high resolution marks, in an assortment of colors, on glass, ceramic, metal and plastic substrates.

TherMark™ Laser Marking Materials (LMMs) are available in liquid form and also in spray cans.

The liquid LMM has to be applied to the substrate surface. After a short drying time the mark can be fixed with low laser power. The substrate itself remains cool during the process.

TherMark™ Laser Marking Materials are available for standard applications and can also be adjusted to specific customer´s requirements.

Process description

Making a permanent impression

TherMark™ Technology overview

The TherMark™ - technology brings enhanced contrast and/or coloured materials in direct contact with the surface of the object to be marked. Together with Nd:YAG- or CO_2-Laser radiation they interact with the surface and cannot be removed without leaving a mark. The wavelength ( ) is given through the type of the Laser the necessary energy density (Joule/ cm^2) depends on the Marking Material and the Substrate used. Through the different TherMark™ - coatings the creative flexibility of the Laser will be extended for another piece mainly against higher temperatures. The actual physical damages through the mark (for example the loss of strength) are within the range of normal use.

The TherMark™ - Technology up to now is the only Marking Method which meets all four key requirements in modern industrial marking – high resolution, high contrast, quick and permanent. Above that the Laser allows a quick change in marking contents and information. The behaviour and teamwork of all the components of a Laser Marker, the speed of the beam steering unit and the flexibility in changing the marking contents allows a high quality mark in extremely short production time which can´t be achieved with other marking methods up to now in this quality.

Picture 1: several substrate materials marked with TherMark™

Picture 2: Cast Aluminum marked with TherMark™

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Laser Marking Materials

Product overview

TherMark™ Laser Marking Materials are designed to work with specific substrates and are available in different colors. Depending on the substrate material good results can be achieved with low laser power.

All Laser Marking Materials can be used with Nd:YAG– and also CO_2-Lasers. They are temperature proof up to some hundred degrees Celsius.

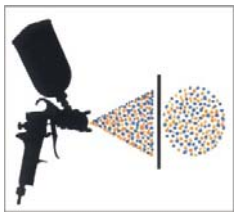
The table below shows which Laser Marking Materials are most suitable for a specific substrate. Experience showed that the LMM 14 spray can is most suitable for highly polished surfaces and alloys containing tin:

	LMM 14, dark	LMM 12, dark	LMM 28, bronze	LMM 34, red	LMM 48, blue	LMM 64, green	LMM 74, yellow	LMM 98, light
Glass		✓	✓	✓	✓	✓	✓	✓
Ceramics		✓	✓	✓	✓	✓	✓	✓
Porcelain		✓	✓	✓	✓	✓	✓	✓
Enamel		✓	✓	✓	✓	✓	✓	✓
Stainless	✓	✓						
Brass	✓							
Copper	✓							
Bare Aluminum	✓							
Anodized Aluminum		✓[1]		✓[2]	✓[2]	✓[2]	✓[2]	
Chrome plated metals	✓							

[1]: better results are to be achieved with Nd:YAG-Laser

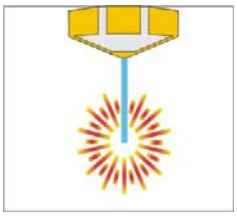
[2]: with limitations

The principle process is as follows:



Application by

- Spraying
- Brush
- Allow LMM to dry



Laser Marking

- CW-Mode
- Power settings: 3-10W
- Marking speed: 50-300mm/s

Removal by

- Wiping with wet cloth
- Cleaning under running water
- Ultrasonic

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