

GRAFMETAL

grafmetal.com
grafmetal@grafmetal.com

User manual of GRAFMETAL fluid for marking of metals with diode laser (1.1 version)

Scope

Fluid for marking of metals with diode laser is intended for marking of metals with diode lasers emitting blue light.

Manual

1. Mix the fluid thoroughly. If it is too thick, thin it with alcohol. Alternatively it is possible to use water for this purpose, but this will extend time needed for drying.
2. Right after mixing apply a uniform layer of the fluid to the surface of metal object with a spatula or a hard brush. Wait minimum 10 min for drying.
3. Pay attention to safety when working with laser and burn the desired pattern with a diode laser.
4. Rinse or wipe off the unburnt paste.

Example parameters: blue diode laser (app. 450 nm) with 5 W optical power, 100% power (static M3), speed 600-3000 mm/min.

Additional remarks: If the adhesion is too weak, increase power and/or decrease speed. If the layer is not uniform, thin the fluid. Metal objects with a higher heat conductivity (e.g. metals like copper, brass or aluminium or objects with a greater thickness) should be processed at lower speed and higher power. The laser burnt pattern may be washed off with acetone. Yield up to 5 m²/L.

General remarks

1. It is necessary to mix the product before every use.

2. Before starting work with a final metal object it is recommended to carry out tests on the same material.
3. If the layer adhesion after laser and cleaning is too weak (e.g. sometimes in the case of aluminium, copper, chrome plated objects or similar materials), then it is recommended to degrease the surface by strong rubbing of the metal before deposition of the fluid with a cloth soaked with alcohol, acetone or a similar solvent, while paying attention not to scratch the metal surface. If this does not help, then it is recommended to slow down laser speed. If this does not help either, it is recommended to clean the surface of metal with sandpaper.
4. Laser lid should be closed during the whole working time of the device. Metals reflect laser light, what, when the lid is open, may lead to a health damage, burns or losing of eyesight. If the laser is not equipped with a lid, then it is necessary to prepare adequate safety measures.
5. Repeatedly control if the laser optics is clean.

Remarks regarding creation of images for direct marking of photos without dedicated software

Creating images on metals during the marking process based on photos may require conducting a series of trials. If the laser software does not allow you to prepare a suitable file, it is suggested to process the photo with tools such as <https://www.imag-r.com/> or to transform the photo to black and white (but not to shades of gray) with graphics processing programs.

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FLUID FOR MARKING OF METALS WITH DIODE LASER

WARNINGS APPLY BEFORE LASER PROCESSING. AFTER BURNING AND RINSING THE LAYERS ARE SAFE.
H225 Highly flammable liquid and vapour. H319 Irritating to eyes. H360D May cause harm to the unborn child. P210 Keep away from heat, hot surfaces, sparks, open flames and other sources of ignition. Do not smoke. P233 Keep container tightly closed. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and can be easily removed. Continue to rinse. Contains: Ethanol



THE PRODUCT IS INTENDED FOR PROFESSIONAL USE ONLY. THE PRODUCER IS NOT RESPONSIBLE FOR ANY INCORRECT USE THEREOF.

Producer: KARWYS Piołunowa 43 81-589 Gdynia Poland, European Union Tax ID number: PL9581590886	Contact information: grafmetal@grafmetal.com +48 575 737 991
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