REA JET

MERCK

Permanent Laser Marking of Silicone

REA Laser Systems & Laser Sensitive Pigments by Merck

Perfect Markings

LASER

Each product is unique for complete traceability. This requirement for individual marking of parts is a great challenge for manufacturers of products for global markets. Particularly for the marking of silicone products, special solutions are required, because ink or similar methods can hardly or not at all achieve adhesion on silicone. We have recognized this need and can offer our customers a reliable solution for the captive marking of silicone.

The leading science and technology company Merck KGaA and the specialist for industrial coding and marking solutions REA have worked closely together to develop a process that enables precise and permanent markings of silicones.

Laser-sensitive additives by Merck are added to the raw material used in the production of silicone. The optimized energy input with the REA JET FL laser causes a reaction of the additive, which leads to to a well visible colour change in the material.

This results in permanent and thus counterfeit-proof markings. Another essential advantage of the process is the flexibility of the laser. It can mark in areas that are inaccessible to conventional coding and marking methods. In the case of silicone products, these can be versatile molded and injection molded parts. Silicones or plastic products with added laser-sensitive pigments can be individually marked with variable data using the REA laser system in compliance with the highest industrial production standards. A basic requirement for the traceability of products.

REA JET FL Fiber Laser

Applications

The laser marking of silicones is used in many different industries and fields of application, for example:

- Medical and laboratory technology
- Automotive and aerospace industry
- Building and electronics industry
- Machine engineering
- Catering supplies
- Household goods
- Advertising material industry
- e.g.

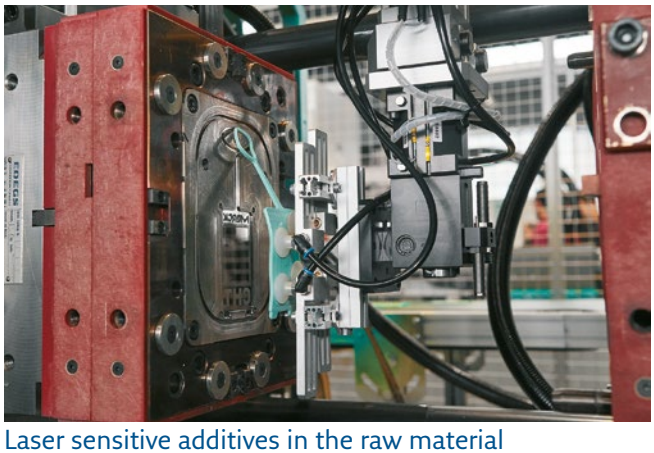

Foto: ARBURG

Laser sensitive additives in the raw material

Foto: ARBURG

Laser marking of silicone with color change

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Functional Pigments for Laser Marking

Can you mark with light?

The user can vary the intensity of the laser marking and choose between light to dark color change on different background colors as well as on transparent products.

Advantages REA JET FL Fiber Laser:

- Compact design for easy integration.
- State-of-the-art interfaces for a wide range of control options.
- Laser systems can easily be added to the injection molding process.
- REA JET TITAN Platform, the uniform operating concept for all REA JET systems.
- Unlimited industry 4.0 capability.

It‘s the mixture that counts

How can a polymer or silicone be marked with the laser? The answer depends on the mixture of materials.

Before a component is manufactured, a decision is made which colour the polymer or silicone should have. The functional pigments of the Iriotec® 8000 series are already added here - even before the material is formed. Powder and granular Merck additives are available for various applications and compositions.

Colour change on silicone hoses

Advantages of laser marking for your production process:

- **Contact-free:** Exact and efficient markings without mechanical wear. Can even be used on soft, rough or corrugated surfaces.
- **Without ink and solvents:** Consumable-free and no follow-up costs.
- **Fast:** Razor-sharp markings can also be applied to moving parts at an exact position in a very short time.
- **Individual:** Application of variable data such as individual part markings, 1D and 2D codes, texts and graphics.
- **Durable:** Laser markings are made within the material, not on the outside. Surfaces therefore do not have to be pre-treated.
- **Cost reduction:** Material marking can be fully automated. The cost-intensive storage of pre-printed products is reduced with minimum maintenance.
- **Safe:** No effects whatsoever on the protective properties of plastic and silicone as well as permanent and therefore counterfeit-proof.

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