

Effective Authentication for Molded Plastic Parts and Packaging

Counterfeiting and grey market reselling are serious problems in the pharma, medical device, and life sciences industries, as they are for consumer and other products.

RepExact's Swiss micro-part supplier, Mimotec SA, has developed an affordable solution that is suitable for very small and/or high volume parts.

Using their proprietary and patented CLR-Liga technology, in cooperation with your tooling supplier, Mimotec manufactures miniature coded structures in the form of mold inserts as small as 1mm². These can be placed at the tip of ejector pins or in other non-critical areas, embossing a coded logo or text of your choice, invisible to the naked eye, each time an injection molded part is made.

The patterns formed are not simply miniaturized images, but are created using diffractive holograms, tuned to laser light frequencies. Making the inserts requires highly sophisticated and specialized equipment - and proprietary know-how. The nanofeatures on the part are all but impossible to copy. Thus, a very high level of protection is achieved.

A simple laser pointer will reveal the image, so inspections can easily be performed in the field. In the case of clear material, the light will shine through and project the image onto a surface behind the part. In the case of opaque material, the image will be reflected to a surface held at an angle.

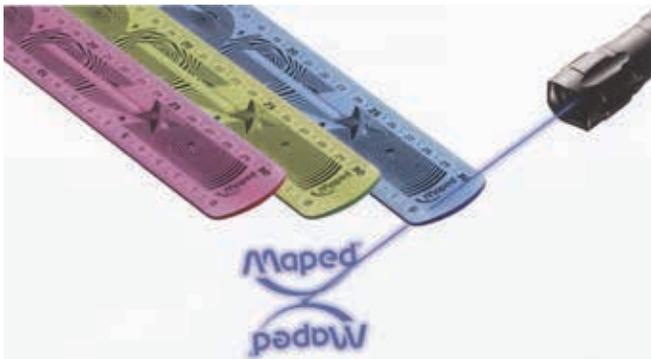


As opposed to holographic decals, RFID chips, nanoparticle additives, etc., as the diffractive nanostructure is simply embossed into the surface of the part during manufacture, there is no additional cost per component. This makes the solution attractive for high volume parts. The image cannot be removed without apparent damage.

No computer data base tracking or other complex infrastructure is required. The only costs are for making the photo masks and insert to customer specification, and for adapting the tooling to take the tiny insert, which can be bonded or held magnetically.

Areas of application include exterior plastic parts in all kinds of potentially counterfeit-prone devices, packaging for consumer, medical, and pharmaceutical products, diagnostic devices, lab-on-chip/IVD components, etc.

The same authentication technology can also be applied when Mimotec manufactures electro-formed metal micro-parts.



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