INTEGRATING COPPER METALLISATION INTO HOLOGRAMS AND OTHER SECURITY DEVICES

Due to its increasingly complex nature and difficulty to reproduce, the hologram has become an effective anti-counterfeiting device employed in a wide variety of security applications. It is now part of a rapidly growing global industry. Holograms offer a wide variety of different features which can be matched to different levels of security requirements, from those used in relatively low cost commercial applications such as packaging to a more sophisticated security method of protecting currency and controlling illegal immigration. Whilst the intrinsic security of holograms is captured within the origination process, their commercial success is due to the continuous development of materials and application techniques. Developing new materials rendering new colours is another way to fight counterfeiting and to enter additional market segments.

Idvac Ltd. continuous development in advanced vacuum technology has resulted in the development of a cost effective process to deposit copper at a good line speed. Holographic Films metallised by this method exhibits an aesthetically appealing copper lustre. There are two main reasons for the introduction of copper metallization as an alternative to standard silvery coloured aluminium; the first is the bright lustre of the copper, which is difficult to be replicated by using standard aluminium metallising with chemical pigments or dyes and the second is the de-metallising of copper, which is somewhat harder than the de-metallising of aluminium. In the de-metallising process the metal is removed by chemical or physical process to print letters, logos or patterns within the metallised side. De-metallising add another feature to the security hologram to fight counterfeiting.

The other added advantage is the electrical conductivity of copper, which could be used for other applications such as RFID antenna.

At present, Idvac Ltd. is offering its metallising process know-how and retrofits to convert standard aluminium vacuum web metallisers to copper metallization. Idvac technology does not hamper the performance of the standard metalliser to aluminium metallization, and the machine operator can switch from standard aluminium metallization to copper metallization within couple of hours. So many companies worldwide have shown interest in this technology. The main application of copper metallization is for security holograms. However, there are interests of using copper to replace the silvery aluminium thread in Banknotes.
Idvac Ltd., which is based in Manchester Science Park, England, has over 12 years experience in the hologram market and 30 years experience in advanced vacuum technology and packaging market helping leading companies in the UK, Europe, USA, and Far East to improve the image and durability of their products. The company supplies

process retrofits and know how to convert standard vacuum metallizers to produce unique coatings.
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COPPER METALLISATION ON EMBOSSED HOLOGRAPHIC FILM