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Not on aluminium

At the HoloExpo Conference, which took place in Saint-Petersburg this summer, Idvac Ltd (England) introduced a new technology to add extra security features to holograms against counterfeiting. It is connected with the development of new coatings deposited onto holographic embossed film in vacuum. The Watermark has learned the details from Professor Nadir A.G. Ahmed, Head of the Company.



An English Company has developed technologies of vacuum coating various materials to add extra security features

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Why is it necessary to develop the new coating technology?

- In order to save a lot of information and, at the same time, to protect the document parameters, opaque metallized holograms, as well as semitransparent holograms were developed recently. As a rule, aluminium metallization is used to show holographic images with the high reflection, and zinc sulphide or titanium oxide surfaces are applied for the creation of security transparent layers for documents, for example, passports or ID cards. But aluminium is moisture-sensitive and can be counterfeited since counterfeiters have now access to vacuum equipment to produce counterfeited aluminium holograms.

- What is your company offering instead of aluminium?

- We have conducted scientific research in the field of advanced materials and vacuum technologies and have created an economically rational metallization process of coating various materials, including titanium, titanium oxide, chrome and copper alloy, at a good film line speed. Holographic films metallized in this way have aesthetically attractive luster and good moisture resistance.

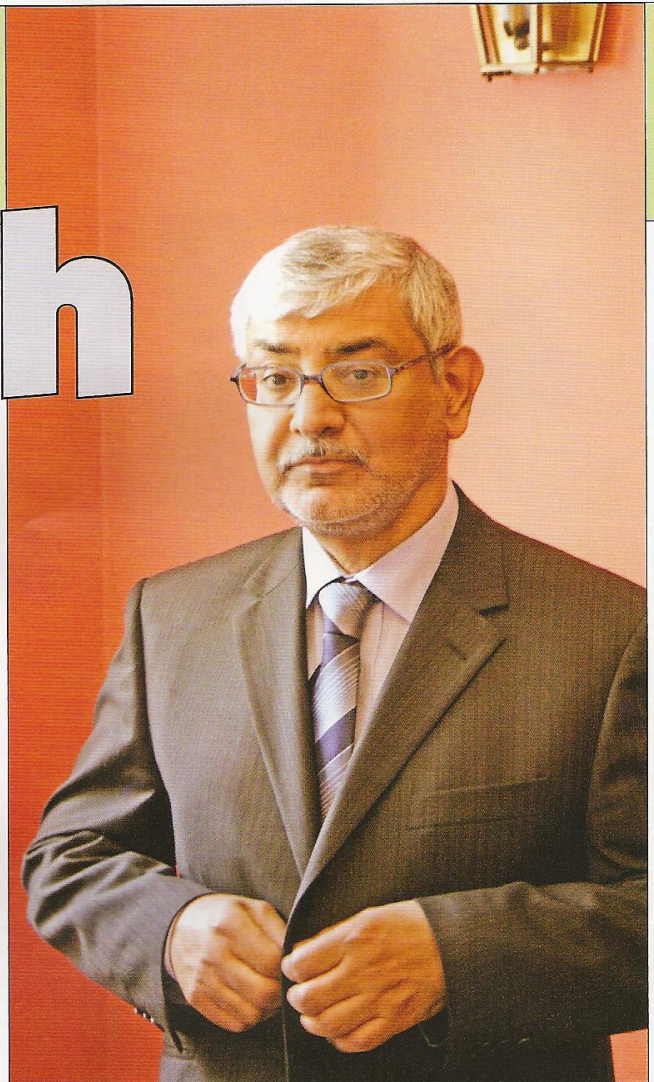
We are also working on the laser demetallization technology for additional security elements application – inscriptions, logos or patterns on holograms. The laser demetallization technology introduces additional characteristic properties to security holograms.

- How did the idea of such a technology development appear?

- I worked for a company producing vacuum equipment for a very long time, and saw new opportunity and requirements. Idvac Ltd was created to develop new hologram coating processes that can be retrofit onto standard vacuum web metallizers. The major goal of our developments is counterfeiting control.

- Do you develop only technologies or equipment also?

- Idvac Ltd develops technologies and materials. The customer should have a vacuum web metallizer; the whole process takes place on his equipment. We retrofit the process on our customer metallizer and supply all know how and training. We explain to our customers how to do it.

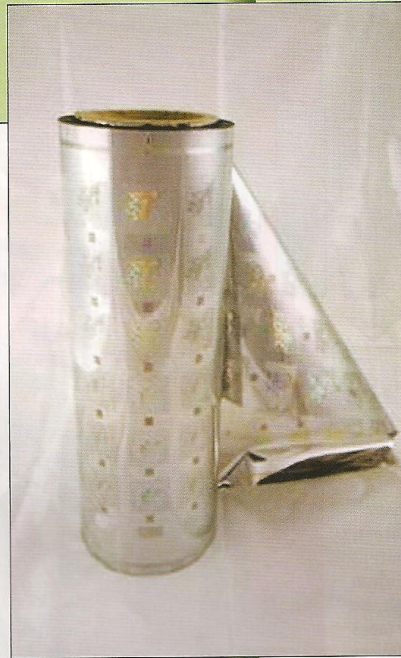


- Where are the new vacuum surfaces applied?

- Materials with high refraction index – zinc sulphide (ZnS) and titanium oxide (TiOx) are used for the production of security transparent layers for documents, for example, passports or ID cards. Such surface is used in so many passports. This is a development of our company.

Another material we apply actively is copper. Holographic embossed films metallized with copper or copper alloy have bright copper colour or deep golden luster. The copper luster and its electrical conductance is difficult to reproduce using standard aluminium metallization with chemical pigments or inks. Besides, copper demetallization is more complicated than aluminium. We apply laser demetallization for copper surfaces, because chemical demetallization is carried out using chemicals which would react with copper. The process is quite complicated and makes the hologram more secure. With the help of laser demetallization we can make letters, logos or patterns.

The next material is chrome alloy. It is applied for



holograms used out doors, for example those on vehicle number plates or licence discs in cars. Aluminium holograms used beforehand are subject to rust because of interaction with environment. But chrome alloy is resistant to atmospheric actions, therefore the hologram may be kept in salted or high humidity environment for longer period.

Idvac Ltd is the only company in the world offering this technology.

- Are your technologies used only in hologram production?

- Not only. For instance, it is the credit card magnetic strip erase protection. Chrome alloy can be coated on the magnetic strip – it is not magnetizable, therefore it acts only as protection; the data is contained in the magnetic strip. We are developing nickel and ferrous alloy, which will have magnetic properties and be used as a magnetic strip.

Another application is on banknotes. In some countries window thread metallized with copper instead of aluminium is now used on banknotes.

- Are there such banknotes already?

- Yes, I believe the banknotes of Sudan. They were produced by one of the European companies using this technology.

I would like to point out that Idvac Ltd has only existed for three years. Our developments are new technologies; they only are starting to take root, therefore at the moment it is hard to speak about wide geography of their application.

- You have achieved significant advance in three years. What is it connected with – the demand for new technologies or your advertising policy?

- There is a demand for new technologies – the market needs new ways of anti-counterfeiting protection. Idvac Ltd carries out research and development works and offer its expertise to companies in this field. Such companies benefit from our development work.

- What are your nearest plans? Are you going to develop new technologies?

- We are planning to develop new technologies, in particular smart hologram for various kinds of sensors, for example pressure sensors and others. We are also involved in the field of nanotechnologies.

- Are you interested in the Russian market?

- Yes. I believe we can offer our security technologies at the Russian market. This market is very active now and looking for new technologies to fight counterfeiting. ■

