Tutorial UV hybrid structure / gloss varnishing effects plus film lamination

**USP:**
Strong visual contrasts, visual and tactile replica of an industrial coating process

**Effects:**
UV hybrid lacquer structure / gloss effects on laminated material

**Suitability:**
Cosmetics industry | food industry | tobacco industry

**Machine requirements:**
Laminating machine, six ink offset press with double coating unit and UV installation with intermediate dryers (at least one UV intermediate dryer is needed upstream of the coating unit)

**Design requirements:**
Undistorted, top view studio photographs of the pan to be treated, both empty for the outer side of the wrapper and with a frying egg for the inner side; dark background to boost the UV hybrid lacquer effect

**Description of the effects:**
The UV hybrid lacquer effect exhibits properties similar to oil-based hybrid lacquer effects, but with the huge advantage that the exclusive use of UV lacquer eliminates the risk of yellowing unavoidable on oil-based products. Further advantages are its safe use on nonabsorbent materials and its fast drying thanks to the UV system. Also the UV hybrid system is a two-component system, and this too does not generally need a varnish plate for its application, saving production costs. Yet another advantage is that this system can produce very fine structures in the varnishing form, without the risk of forms smearing in production or disruptive dot fringing. Users can also configure the varnishing effect homogeneously from 0 % to 100 % by screening the varnishing form (which is placed over the print unit and so can be applied like a printing ink). We utilise this to replicate the visual and tactile properties of the pan's GREBLON® surface on the submitted sample.

The metallic gloss is provided by silver film laminated partially on the surface prior to offset printing. Nonmetallic elements are then remasked with opaque white.

**Description of the print sample:**
This example print is to illustrate how an intricately worked pan wrapper can utilise the huge potential of modern finishing, also for “printed reality”, or the printed replication of surfaces and materials. This wrapper was deliberately provided with a high quality finish on its outer side and a simple and low migration finish on its inner side, thereby presenting the high contrasts of this potential. As a particular gag, the pan is depicted empty on the unopened cover flap and with a frying fresh egg on the opened cover flap.

**Comments:**
Like all complex print finishes, this too demands clear project planning and the coordination of all parameters between all companies involved in the production chain. Both materials and process steps must have been defined and matched to each other in the preliminary phase.

Our example print is to be applied to a pan wrapper, so the materials can be chosen irrespectively of their migration properties. In combination with our certified varnishes, these effects, however, can also be used with a similar quality in the food industry. This, though, must comply with all of the legal specifications issued by the respective institutions in each country of distribution. Also highly finished food packaging can be produced through careful use of certified substrates and low-migration materials, specifically inks and varnishes.
Implementation:

This print job first needs suitable image material of the pan to be treated. These photos must depict an undistorted top view of the pan. The plan for the inner side is to depict the pan frying a fresh egg. This shot must therefore be made in a studio with cooking facilities. Photographing food is generally quite difficult, so ideally a photographer experienced in this field should be commissioned.

Once the image material has been prepared, the wrapper layout is generated on the basis of the punched contour. For the optimal reproduction of image material in our example, we work with the Euroscale colourspace and therefore consistently with the ISO Coated v2 colour profile. In the process, the colour values for the image contents, specifically the yellow for the pan, are matched to the original. The final result will therefore be as few colour differences as possible between the packaging and the product. All white areas like the text elements and the GREBLON® label on the face side are completely masked with opaque white. We have deliberately decided not to mask the metallic areas like the base and, above all, the edge of the pan in order to reproduce the metal as realistically as possible. The outside of the pan is now provided with a background based on a pattern derived from the GREBE logo, masked with (85 %) black, and replicated in the structural varnishing form for the maximum effect. The grid presented by the 85 % black on the silver laminating foil generates a glitter effect reminiscent of a coarse pigment and therefore greater depth in the final printed image.

In reproducing the surface of the pan’s coating, we utilise the structure found in the image, boosting this by shifting the gradations. Areas interrupted as a result are filled with an inverted version of the Hurter-Driffield curve manipulation and so assume a surface matched to the printed image and the reflections of light visible there. We clean up manually and place in the hybrid varnish’s spot colour channels, making sure that we generate enough contrast range without interrupting the light or smearing the depth effects. Further elements like the WEILBURGER Graphics GmbH lettering, the logo, and the yellow bars are now worked into the hybrid varnishing form; the two additional varnishing forms created for the UV varnish components and the additional semi-matt water-based varnish component; and the result transferred as a PDF/X-1a:2001 file to the print shop.

Final printing then uses an 18 cm²/m² anilox roller for the UV lacquer and a 13 cm²/m² anilox roller for the water-based coating. The UV hybrid overprint lacquer component must be introduced dry into the coating unit, so an intermediate dryer must be integrated upstream of the first coating unit. As usual for UV overprint lacquers, the quantity of applied lacquer must be set close to the smearing point before the density can be raised.