

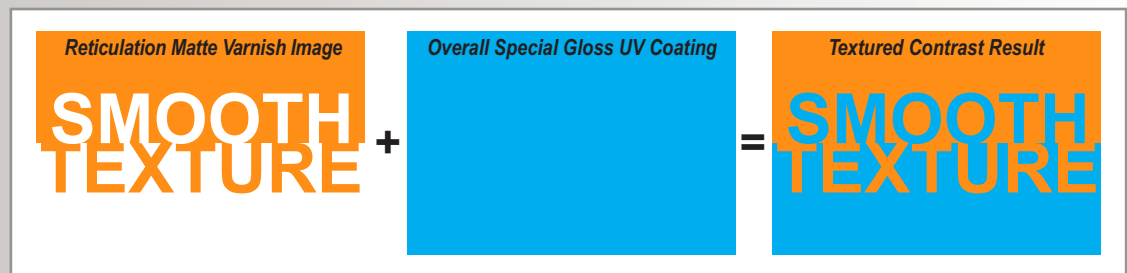
UV Coating - Reticulation OPV v1.1

Printers are continually seeking out new ways of differentiating themselves from the competition by offering their customers unique and innovative printing techniques. These techniques can help to enhance a brand image or attract consumers to products with exciting and exotic packaging designs. In many cases, the exploration into new and unique printing techniques requires an investment into new equipment technology and substantial resources being dedicated in the interest of R&D to perfect the process. For Printers who do not have the capabilities or resources to explore exotic print techniques, one proven application that continues to be very popular and adds enhancement to a printed piece is the use of a Reticulation Over-Print Varnish(OPV) to create a textured appearance as well as visual contrast.

Reticulation Varnish Use

Application/ Technique

Reticulation effect varnish is a specially formulated UV curable lithographic over-print varnishes that is used in conjunction with a compatible gloss UV coating product to create a textured coating film and visual/measurable contrast on a printed piece. The varnish is applied to the printed sheet using a printing unit and litho-plate that carries the desired spot textured image. Once the varnish image has been applied to the printed sheet via the printing unit, an in-line flood/overall area of special gloss UV coating is applied using a coating blanket/plate by the coating unit. The immediate interaction between the reticulation varnish film and the un-cured UV coating film results in the coating film becoming reticulated/textured on the applied varnish areas. The surrounding areas of gloss coating which do not contain the reticulation varnish remain smooth and glossy, creating a tactile and visual contrast between the areas with and without varnish applied. Variations in varnish film thickness, coating film thickness and wet/dry-trap application can vary the final result of the reticulation effect.



Requirements

The reticulation varnish technique is a relatively simple and repeatable process. Most printers who are properly equipped can perform this effect and achieve good results without issue during their first attempt. The following is required for producing this technique:

- Press with an available printing unit for reticulation effect varnish application via litho process
- Litho plate with desired reticulation image for printing unit
- Coating unit with coating blanket/plate material for application of a gloss UV coating that is compatible with reticulation varnish to achieve a desired result. Both anilox and non-anilox/roller-nip application systems are suitable for this technique.
- Press curing system equipped with UV lamps for curing the reticulation varnish and UV coating film.

** The coating can wet or dry-trap over the reticulation varnish.

Reticulation Varnish Use - *continued*

Effect Process	The reticulation effect is an instantaneous process that is created by the surface-tension/surface-energy differences between the applied reticulation varnish film and the over-printing gloss UV coating film. In this effect, the required characteristics for each product are the opposite of what would typically be desired for a UV coating to wet properly over an applied varnish film. Due to this contrast in characteristics, the reticulation varnish and gloss UV coating products are specialized and must be paired together to create predictable and reliable results. The use of a UV coating that is not specified for this technique can be unreliable, and the results unpredictable. In cases where a general-use UV coating is substituted for the proper UV coating product, no reticulation/texture effect may occur resulting in a smooth coating film over the reticulation varnish areas.
Contamination	Due to the specialized nature of both the varnish and coating products, care should be taken as not to contaminate either product with general-use varnish and coating products. When switching to the reticulation varnish, all ink fountain and ink/dampening roller surfaces should be completely cleaned prior to use. When switching to the coating product, the coating circuit, chamber and anilox roll should be cleaned completely prior to use. Contamination of the specified coating for the reticulation effect by a coating product that contains higher concentrations of wetting aids such as silicone can impair the reticulation effect and make the results unpredictable.
Wet vs Dry-trap	The reticulation effect varnish is a UV curable varnish and requires UV curing at the press-delivery to be functional by curing the varnish and coating films simultaneously in an in-line wet-trap application. However, UV curing capabilities at the respective printing unit can also be employed for the varnish to allow the UV coating to be applied in an in-line dry-trap application. Wet-trapping and dry-trapping the coating over the varnish will result in a reticulated effect, however, both can have varying effects on the result. As reticulation is a subjective effect, it is recommended to test both methods to determine which produces the most desirable result.
Coating Application Rate	The degree of reticulation can be varied by changing the amount of varnish and coating being applied. A small amount of coating being applied can result in a very subtle and tight-waved reticulation effect whereas a large amount of coating can result in a more exaggerated and noticeable reticulation effect. However, too much coating can result in the amount of coating "over-powering" the beneath varnish film resulting in smooth film lacking significant texture. The recommended anilox range for reticulation effect is 11-14 bcm. Volumes lower and higher than this range can provide insufficient results.
Varnish Application Rate	As the coating application rate is fixed when using anilox systems, the only variance that the Operator can employ outside of wet/dry-trapping is changing the varnish film thickness. The varnish film thickness must reflect the amount of coating being applied to achieve the most dramatic effect. To determine the appropriate amount of varnish to run, it is recommended to use a graduated ink-fountain setting, with the center ink-zones set with what the Operator believes is the optimum amount of varnish application. To either side, gradually increase/decrease the ink zones to create a range of varnish film thickness across the sheet, low to high. Once the sheets are coated and the reticulation effect can be observed, the entire sheet can be inspected to determine what varnish amount produces the best results with the anilox roll being used. This allows a range of results to be produced with a minimal amount of time and sheets being wasted. It is recommended to produce these results in both wet and dry-trap methods to determine the optimum results.