



# Over Print Varnish Performance Program Report



Supplier Information	
Supplier Name	Michelman Inc.
Supplier Address	9080 Shell Rd. Cincinnati, OH 45236 USA

Product Information	
OPV Name	DigiGuard UV Standard 2100
Manufacturing Facility	USA
OPV Type	UV Curable
Coating Finish	Gloss
Substrate Application	BOPP
Press	ws-6000 Digital Press
Ink Type	HP ElectroInk 4.5

Coating Device	AB Graphics Omega Digicoat
Date of Evaluation	08/18/2016
Anilox Roller	360 Line Screen, 7BCM, 10.85 cm <sup>3</sup> /m <sup>2</sup> 60 Deg ART Engraving
Corona Intensity (kW)	0.84
Dryer Temp (F/C)	N/A
UV Intensity	Set Point 45% (UV GEW VPC 35 412 W / in <sup>2</sup> @ 100%)
Coating Speed	15.24 (m/min) 50 (ft/min)
Evaluation Process	Full Baseline

Evaluation	Measurement	Result	Grade (stars)
Adhesion	Tape pull test	Best Performance	☆☆☆
Mechanical Wear	Resistance to peeling, scuffing, abrasion, creasing, bending, cross cut	Good Performance	☆☆
Solvent Resistance	Resistance to water, IPA, ISOPAR	Best Performance	☆☆☆
Optical	Gloss, density, whiteness, shade	Best Performance	☆☆☆
Heat Resistance	Heat seal, aging, sterilization, microwave, hot surface		
Sunlight Exposure	Color change, $\Delta E_{00}$		

## Comment Detail:

	★★★★	★★★	★
Evaluation	Best Performance	Good Performance	Limited Performance
<b>Mechanical Wear</b>	All evaluations acceptable	4 evaluations acceptable	< 4 evaluations acceptable
<b>Solvent Resistance</b>	All evaluations acceptable	2 evaluations acceptable	< 2 evaluations acceptable
<b>Optical Tests</b>	No color changes/yellowing	Mild color changes/yellowing	Visual color changes/yellowing
<b>Heat Resistance</b>	5-6 evaluations acceptable	3-4 evaluations acceptable	1-2 evaluations acceptable
<b>Aging / Sunlight Exposure</b>	0-2 $\Delta E_{00}$	3-4 $\Delta E_{00}$	>4 $\Delta E_{00}$

### Star Rating

- ★★★★ Best performance: acceptable results on all conditions evaluated.
- ★★★ Good Performance: acceptable results on many of the conditions evaluated.
- ★ Limited Performance: acceptable results on some of the conditions evaluated.

The OPV tested was applied to an HP Indigo certified substrate for the HP Indigo ws6000 Digital Press. Test results correlate solely to the listed substrate and may not reflect similar performance on other certified or in-house control substrates.

Please contact the coating supplier to discuss the full detailed report if required.