



# Over Print Varnish Performance Program Report



| Supplier Information |   |
|----------------------|---|
| Supplier Name        | ASHLAND INC.                            |
| Supplier Address     | 5200 Blazer Parkway<br>Dublin, OH 43017 |

| Product Information    |                       |
|------------------------|-----------------------|
| OPV Name               | PureKote DP9600 Matte |
| Manufacturing Facility | USA                   |
| OPV Type               | Water Based           |
| Coating Finish         | Matte                 |
| Substrate Application  | Polypropylene         |
| Press                  | ws-6000 Digital Press |
| Ink Type               | HP ElectroInk 4.5     |

|                       |   |
|-----------------------|---|
| Coating Device        | AB Graphics Omega Digicoat  |
| Date of Evaluation    | 1/31/2014   |
| Anilox Roller         | 360 Line Screen, 7BCM, 10.85 cm <sup>3</sup> /m <sup>2</sup> 60 Deg ART Engraving |
| Corona Intensity (kW) | 0.87  |
| Dryer Temp (F/C)      | 185 °F / 85 °C  |
| UV Intensity          | N/A   |
| 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 | Best Performance | ☆☆☆           |
| Solvent Resistance | Resistance to water, IPA, ISOPAR  | Good Performance | ☆☆            |
| Optical            | Gloss, density, whiteness, shade  | Best Performance | ☆☆☆           |
| Heat Resistance    | Heat seal, aging, sterilization, microwave, hot surface                 |                  |               |
| Sunlight Exposure  | Color change, ΔE <sub>00</sub>  |                  |               |

## Comment Detail:

|                           | ★★★★                       | ★★★                          | ★                              |
|---------------------------|----------------------------|------------------------------|--------------------------------|
| Evaluation                | Best Performance           | Good Performance             | Limited Performance            |
| Mechanical Wear           | All evaluations acceptable | 4 evaluations acceptable     | < 4 evaluations acceptable     |
| Solvent Resistance        | All evaluations acceptable | 2 evaluations acceptable     | < 2 evaluations acceptable     |
| Optical Tests             | No color changes/yellowing | Mild color changes/yellowing | Visual color changes/yellowing |
| Heat Resistance           | 5-6 evaluations acceptable | 3-4 evaluations acceptable   | 1-2 evaluations acceptable     |
| Aging / Sunlight Exposure | 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.