## Matte Burnishing Overview

**Product Comparison - Gloss v Matte**

Unlike gloss/clear waterbased coatings, matte waterbased coating products contain silica flattening particles that are employed to create a very low visual/measurable gloss level to the dried coating film. While gloss coating products produce a very smooth and glass-like film surface with a high degree of clarity to optimize specular reflectance and achieve high results for visual/measureable gloss, the silica particles used in matte coating products produce a very irregular/rough film surface and light interference within the film which increases light refraction, lowers specular reflectance and ultimately lowers the resulting visual/measurable gloss level. The degree of ‘matte’ gloss level that a matte waterbased coating achieves is representative of the size/concentration of silica flattening particles that are contained in the coating film. The below image demonstrates the light reflective difference between a ‘gloss’ and ‘matte’ waterbased coating film:

![Gloss Coating Film vs Matte Coating Film](image)

**Burnishing**

Burnishing is a visual defect in which the matte waterbased coating film increases in gloss or ‘sheen’ due to applied friction/abrasion while the dried film remains intact. Due to the inherent irregular/rough surface that a matte coating film achieves, when abrasion/friction forces are applied to the film, the silica flattening particles on the film surface can become sheared resulting in a smoother coating film surface than was originally established. The change in the matte coating film surface can result in a much smoother or ‘polished’ film creating an increase in visual/measurable gloss compared to the surrounding coating areas; this area that now has an increase in gloss is defined as a ‘burnish’.

**Matte Coating Burnishing Considerations**

- **Substrate**
  High hold-out stocks with a smooth surface can contribute to matte coating burnishing. Use of absorbent stocks with a rough/irregular surface with ‘peaks and valleys’ can reduce the visual burnish result.

- **Ink Coverage**
  Matte waterbased coating applied over dark ink colors can make the burnish result more visibly evident.

- **Rub Testing**
  When conducting rub testing on printed-pieces that use a matte waterbased coating, burnishing will be a consideration in the testing results. While the overall matte coating film may exhibit robust characteristics for rub-resistance, due to the burnish sensitivity of matte coatings, a visual burnish may be the result. Rub test parameters may require adjustment compared to other higher-gloss coating products if burnish-resistance is to be part of the overall performance evaluation/criteria.

- **Alternatives**
  Use of a less-matte coating product that produces a higher visual/measurable gloss film may be necessary as the reduced concentration of silica flattening particles contained in the dried film can reduce/eliminate the burnish result compared to a more-matte coating product. ‘Burnish-resist’ matte waterbased coating products are available, however, this may only improve the overall burnish result and not eliminate it.