



Aqueous Coating on Non Porous Substrates

Printing aqueous coating on non porous substrates can be achieved when taken the proper precautions. Non porous substrates can include plastic, polyboard, foil and vinyl. Check with your paper supplier to confirm if your substrate is considered non porous or non absorbent. There are several factors that can affect the drying and adhesion of the coating to this type of substrate.

Factors when printing on Non Porous Substrates

- Coating type
- Ink type
- Fountain Solution
- Drying system on Press / Press speed
- Pressroom conditions such as high humidity

Poor drying and adhesion can occur when printing on non porous substrates if the proper precautions are not taken. Poor rub resistance and picking can also occur. Below are some recommendations to follow to help avoid these issues when printing on non porous substrates.

Recommendations before printing

- 1- Testing prior to production with all materials should be done before printing job
- 2- Substrate should be acclimated to pressroom conditions for 24 hours before use. Pressroom should be between 70-75°F with humidity at 45-55%.
- 3- Use an aqueous coating that is recommended for non porous substrates. Not all coatings are designed for this type of substrate. A viscosity of 14-16 seconds with a #3 Zahn Cup is also recommended.
- 4- Consult with your ink supplier to use an ink for this application. Low VOC, high solid inks are generally recommended.
- 5- Consult with your fountain solution supplier for a fountain that is designed for this application.
- 6- Extended delivery on the press is recommended to help with drying the sheet.

- 7- Consult with substrate supplier to make sure the Dyne level of the substrate is between 40-44. This will allow for the best adhesion

Recommendations during printing

- Maintain air volume at 100%. It is important to maintain air volume at 100%. Never lower the air volume to bring down the pile temperature. First side temperature should be 95-100°F and the second side 85-95°F
- The first side must be completely dry before printing the second side. Fan the sheets to help cool them before printing the second side.
- Press speed can be reduced to help with drying especially if the press does not have an extended delivery.
- Check air evacuation to get maximum extraction of saturated air away from delivery
- Spray Powder can be used to maintain sheet separation and allow for airflow between sheets in delivery
- Racking the loads into smaller piles will help aid in the drying process.
- Proper ink/water balance will help the ink set faster. Use the least amount of water possible.
- Allow for extra drying time after the second side as been printed. Depending on ink densities and humidity, it may be 36-48 hours or longer before the sheets are fully dry and ready for finishing.