

Printing On Wood - Best Practices

Raw Wood

- **Surface Preparation:**
 - Sand the wood surface to create a smooth, even surface, removing dirt, dust, and oils. If you can plane the wood flat, that would be best.
 - Use a tack cloth to remove sanding debris. Or blow off with compressed air outside. Doing this near the printer can clog nozzles and get wood dust all over the printer.
 - Make sure it is flat and not bowed.
- **Pre-Treatment:**
 - You can print directly to wood. Remember that because it is porous the ink will absorb into the wood grain.
 - Apply a primer or adhesion promoter specifically designed for porous materials. This helps seal the wood's pores and improves ink adhesion. Do not use water or latex-based products as the ink will not adhere well. Try using a urethane-based primer.
- **Ink Considerations:**
 - Avoid excessive ink build-up, as raw wood can absorb ink unevenly.
- **Curing:**
 - Ensure sufficient UV/LED curing to fully set the ink. Longer curing times may be required for raw wood due to its absorbent nature.

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Finished Wood (Painted, Varnished, or Laminated)

- **Surface Preparation:**
 - Clean the surface with isopropyl alcohol (IPA) or a similar solvent to remove contaminants like oils, wax, or fingerprints.
 - If the surface is water-based or latex-based, you may need to lightly scuff it with fine sandpaper or a scouring pad if the finish is glossy, then clean again.
 - Make sure it is flat and not bowed.
- **Pre-Treatment:**
 - If you need to test adhesion promoters on a small area to enhance compatibility with the finished surface.
 - Some urethane and oil-based products may give better adhesion to UV/LED inks and do not require an adhesion promoter. Make sure to test your products for adhesion and durability.
- **Ink Considerations:**
 - Use UV/LED inkjet inks formulated for non-porous or coated surfaces.
- **Curing:**
 - Adjust curing intensity and speed based on the material's finish. Over-curing can cause cracking while under-curing can weaken adhesion.

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Wood Products (e.g., Plywood, MDF, Particleboard)

- **Surface Preparation:**
 - Sand and clean the surface to remove dust, glue, or resin residue.
 - For engineered wood products, ensure there are no loose fibers or inconsistencies.
 - Make sure it is flat and not bowed.
- **Pre-Treatment:**
 - Apply a primer if the product has uneven porosity or resin-based finishes.
- **Ink Considerations:**
 - Consider testing on a sample piece, as engineered wood products can vary in composition.
- **Curing:**
 - Adjust curing parameters to avoid damage to heat-sensitive products like MDF.

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General Best Practices Across All Wood Types

1. **Test First:**
 - Conduct adhesion tests before full production to ensure compatibility.
 - Use crosshatch adhesion testing to evaluate ink bonding.
2. **Environmental Conditions:**
 - Maintain optimal humidity and temperature during printing. Extreme dryness or moisture can affect ink performance and curing.
 - Make sure there is no wood dust from sanding present, it can cause clogged nozzles and well and inconsistency in the finished product.
3. **Printer Settings:**
 - Adjust ink laydown, printhead height, and curing intensity for each wood type to achieve the best print possible. Wood grain will affect how a print looks.
4. **Use Adhesion Promoters:**
 - Select adhesion promoters compatible with UV/LED inks and your specific substrate.
5. **Maintenance:**
 - Regularly clean and maintain printheads to prevent clogs caused by dust or wood fibers.
6. **Sealing or Coating:**
 - For added durability and enhanced appearance, apply a clear UV or protective coating over the print.

By following these best practices, you can achieve high-quality, durable prints on raw wood, finished wood, and wood products with UV/LED inkjet printing.