How to Choose Between UV-Curable and Water-Based Coatings

Description



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Landor liquid lamination
protect, extend and enhance your inkjet prints
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We have put together a short and practical guide comparing UV-curable and water-based coatings, with a focus on performance, applications, environmental factors, and budget differences

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Landor
liquid lamination
Anti-Graffiti
For enhanced UV protection,
chemical and abrasion resistance
REF: WBCCAG1L
BATCH: 166D2418
Water-based Coating
for Digital imaging products
DIRECTIONS FOR USE
Use as supplied. Mix well before use. Stir contents well. Do not shake. One to two coats are sufficient for most applications. Allow coat to dry to the touch prior to the application of a 2nd coat. Dry time will vary with the temperature, humidity and airflow.Apply to clean, dry surfaces, at temperatures above 50°F (10°C). Clean up with soap and water. For roll application,use with a 3/16" short-nap roller or a high-density foam roller. Always test printed substrates before use. Consult Marabu for additional information.
1 LITRE
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Guide to Comparing and Choosing Between UV-Curable and Water-Based Coatings

1. Overview of Coating Technologies

Feature	UV-Curable Coatings	Water-Based Coatings
Drying Method	Instant curing with UV light	Evaporation of water (heat or air drying)
Durability	High â?? scratch, chemical, and moisture resistant	Moderate â?? good for general use, less durable in harsh environments
Finish Options	High-gloss, matte, tactile effects	Typically gloss or satin finishes
Setup & Footprint	Compact, high-speed units	Larger footprint but simpler setup
Environmental Impact	Low VOCs, but energy-intensive	Low VOCs, low energy, water cleanup
Substrates	Paper, plastic, metal, vinyl, fabric	Mainly paper and porous substrates

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2. Application Suitability

Application Type	Recommended Coating
High-end photo/graphics	UV-curable
Short-run or general signage	Water-based
Food packaging	Water-based (due to compliance needs)
Durable labels, outdoor displays	UV-curable
Low-budget or start-up print shops	Water-based
Automated inline production	UV-curable

3. Budget Considerations

Item	UV Coater (2m width)	Water-Based Coater (3.3m width)
Equipment Cost	~Â£150,000	~Â£25,000
Energy Use	High (UV lamps/LEDs)	Low (air/infrared drying)
Maintenance	Specialized parts, bulbs	Easier, fewer consumables
Running Cost (Est.)	Higher (power, materials)	Lower (water, energy)
Training/Skilled Labor	Required for operation & safety	Minimal needed

â??ï¸• **Illustration**: For the **price of one 2m UV-curable coater**, you could purchase **six** 3.3m water-based systems and still have budget left for materials and training. However,

one UV coater could outperform multiple water-based systems in speed and finish quality for certain applications.

4. Recommendation Summary

If you needâ?¦	Choose
Top-tier finish and durability	â? **UV-curable**
Lower upfront costs and eco-friendly operation	â? **Water-based**
High-volume, fast throughput	â? **UV-curable**
Flexibility and ease of use	â? **Water-based**
Recyclable and food-safe output	â? **Water-based**

The **eco-friendly comparison between UV-curable and water-based coatings** involves looking at **VOC emissions, energy use, waste, material safety, recyclability**, and **worker safety**. Hereâ??s a clear breakdown:

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???? Eco-Friendly Comparison: UV-Curable vs. Water-Based Coatings

Factor	UV-Curable Coatings	Water-Based Coatings
VOC Emissions	â? **Low VOCs** (near-zero when 100% solids)	â? **Low VOCs** (but may contain small amounts depending on formulation)
Energy Consumption	â•? **High** (UV lamps or LED curing systems use significant electricity)	â? **Low** (air or IR drying uses much less energy)
Carbon Footprint	â•? **Higher overall** due to energy load	â? **Lower overall**
Waste Production	â? **Minimal liquid waste**, but bulbs and filters require special disposal	â? **Water-based waste** can often be treated and safely disposed
Material Safety	â•? **Some UV chemicals are hazardous before curing** (skin/eye irritants)	â? **Generally safer to handle**, often non-toxic
Worker Safety	â•? **Requires PPE** (UV light exposure, chemical handling)	â? **Safer working conditions** with minimal PPE needed
End-product Recyclability	â•? **Can reduce recyclability** if printed over recyclable substrates	â? **Better compatibility** with recycling and composting (esp. in packaging)
Compliance with Regulations	â? Meets low-VOC regulations	â? Often preferred in food, packaging & eco-sensitive industries
Certifications	May meet GREENGUARD or UL ECOLOGO, but depends on formulation	Often easier to certify under **EU Ecolabel, Nordic Swan, or Blue Angel**

???? Summary

	UV-Curable	Water-Based
???? **Eco-Ranking**	â? ï¸• **Moderately eco-friendly** (if energy source is not renewable)	â? **Highly eco-friendly**
???? **Eco Improvements Possible?**	Yes, with LED UV curing and better waste handling	Yes, with non-toxic additives and closed-loop water systems

???? Final Verdict

- â? **Water-based coatings are generally the more eco-friendly option**, especially in terms of **energy use, human safety, and recyclability**.
- â? ï¸• **UV-curable coatings**, while **low in VOCs**, have a **heavier environmental burden due to energy use** and potential chemical hazards â?? but can still be part of a green solution when paired with **LED UV** and **recyclable substrates**.

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Final Thought

If your focus is **high-end production, speed, and long-term ROI**, UV-curable coatings justify their high initial investment. But for **smaller operations, eco-focus, or cost-efficiency**, **water-based** is the smart and scalable entry point.

Landor 1.6m water based coater,

Mainly used for applications such as vehicle Graphics, and vehicle wraps on vinyl adhesive films such as cast film. Also used for outdoor banner, fabrics, canvas, and high traffic area interiors as well as digital wallcoverings.

Speed is usually limited to about 1m per minute.. Nevertheless you will achieve anything up to and including 60m2 per hours. Also perfect for our ISO Certified anti-microbial solutions for healthcare and high traffic areas



Landor 1.6m Water Based Liquid laminator

3.3m Liquid Laminator

Similar to our 1.6m series the Landor 1.6m liquid laminator coater is most commonly used for larger external facias and signage where a longer lifespan is required, and which otherwise would be vulnerable to the outdoor elements including the premature fading of the prints.

Particularily common for liquid lamination to truckside curtains or retail signage.

Double the life of your prints outdoors!



Landor3.3 water based Liquid Laminator



Landor ATC UV 2m Liquid Laminator

UV80 UV Curable Coater 2m

The 2m UV 80 coater will run between 10 and 20m per minute using a diverse range of coatings including anti graffiti, dry wipe, gloss, clear and matt.

Roll to roll option also available

Foamex, dibond, and other hard and soft rigid materials work very well at fast speeds. Great for Retial applicaions where added abrasion proteciton or high traffic areas may otherwis lead the printed graffic to a shorter life



Burkle UV Liquid Laminator 2m

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UV Curable Coater 2m by Burkle,

Speed capacity in the region of 20m per minute using Mercury Vapour UV lamp system and conveyor for rigid boards. Possibility for a roll to roll accessory. But designed specifically for rigid boards and surfaces. Also capable of coating Glass

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