



PAPER COATING GUIDE

Barrier Coatings – RethINK SOLUTIONS for paper and board Applications

Considerations for achieving good barrier performance

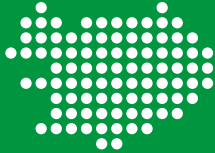
Considerations for barrier performance		
Common Topics	Target	Consider
Base paper / board	High quality, smooth & dense paper / board	Paper refining, porosity, smoothness, homogeneous fibre structure, internal sizing, surface sizing, & surface coating ("clay coated")
Coating layers	Homogenous coverage without defects and fully closed film surface	More layers = less defects. Pre-coating ("primer") or double coating. Different coating systems have pros & cons. Specialist coating (e.g., curtain, air knife, blade, rod/bar) will usually provide higher coatweight and better coverage than other methods
Coating laydown ("coatweight")	Full coverage and acceptable barrier performance	Higher coatweight means better barrier performance and requires more drying capacity, but can also increase the risk of blocking Polymer dispersions are easier to handle than polymer solutions
Foam / Air	No air in the coating mix when applied to avoid defects	Use of additional defoamers may affect barrier performance, so adjustment of equipment and use of deaeration systems is preferred
Drying	Defect-free, dry surface and balanced internal paper/board moisture	Type of drying (hot air, IR, etc) and drying conditions have a significant impact on the coating performance. Temperature range is important
Blocking at rewinder	Zero blocking, as this can damage the barrier	Sufficient drying and cooling of the web before rewinding. As well as minimum coatweight reduce the risk of blocking

Considerations for achieving good converting performance

Important Topics	Considerations for converting performance
Base paper / board	Packaging papers and boards are often specialised and there can be significant differences between different grades, even from the same supplier. It's important we conduct any testing on the same grade as our customer
Barrier requirements	<p>Try to find out all the actual requirements, as well as what is currently being used. Is a combination of different barriers required?</p> <p>This is often not easy. e.g., LDPE is used for commercial reasons but is actually 'over specified' for many applications. Consider some, moderate, good, excellent if specific values are not available</p>
Sealing	<p>Find out as much as possible about the process. e.g., temperature range, dwell time, hot tack, pressure, heat type, coating-to-coating or coating-to-fibre, "lap" or "fin" seal</p> <p>Photos/videos and access to the actual process are always helpful</p>
Further converting	<p>It's important to consider what other functionality might be needed for the coating in the supply chain. e.g., flexibility for folding/bending, stability at high/low temperatures, anti-static, blocking/release</p> <p>Also, is there a need for printing/gluing on the barrier coating</p>
Applying the coating	Different coating methods have pros and cons. It's important to understand what method is being used and what requirements/limitations that brings. e.g., min/max coatweight, single/multiple layers, drying conditions
Coated paper flatness	Coated paper or board must have sufficient flatness for further converting. To maintain flatness during coating, ensure consistent moisture content, good tension control and uniform coating application

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