

TROUBLESHOOTING OF AQUEOUS COATINGS

This guide is intended as an aid to help you solve problems in the pressroom with aqueous coatings. The aqueous coating products being sold today are vastly improved from those of even a few years ago, but the process of applying a water-based coating over wet litho ink must be understood. By following the suggestions outlined in this book; and selecting paper, ink, and coatings that are compatible, you will get consistently good results.

We hope that you will find this guide informative and instructive in the use of ANCHOR® Brand aqueous coatings. We carry a complete range of coatings and are always happy to discuss special requirements that you may have. If you have any questions or comments, please feel free to call or to write to us at:

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PROBLEM	SYMPTOM	SOLUTION
BACKTRAPPING OR INK ON THE COATING BLANKET	<p>Coater activating late allowing ink to transfer to blanket at start.</p> <p>Excess pressure between coating blanket and back cylinder causing thin coating application.</p> <p>Too little coating applied to protect wet ink.</p> <p>Ink does not set before coating.</p> <p>Ink is pulled from sheet.</p> <p>Ink is over-emulsified, reducing body.</p> <p>Coating does not wet ink properly.</p> <p>Blanket packing not trimmed correctly.</p>	<p>Adjust timing for coater start.</p> <p>Adjust contact to "kiss" pressure. Reduce pressure until coating does not transfer, then tighten 0.001.</p> <p>Turn up coater or run at higher viscosity.</p> <p>Check ink density, decrease setting time, use stronger ink.</p> <p>Try increasing tack to provide better adhesion of ink.</p> <p>Run as dry as possible, decrease water pick-up of ink.</p> <p>Check with ink supplier about wax and discuss with coating supplier.</p> <p>Cut packing sharply 1/4 inch smaller than sheet.</p>

PROBLEM	SYMPTOM	SOLUTION
BUILD-UP OF COATING ON BLANKET OUTSIDE OF SHEET	<p>Improper adjustment between blanket and back cylinder.</p> <p>Applicator roller set too tight to blanket.</p> <p>Too much coating being applied.</p> <p>Packing is not trimmed correctly.</p>	<p>Adjust packing to proper height.</p> <p>Adjust for roller to "kiss" setting - 1 to 2 mm.</p> <p>Turn down coater.</p> <p>Cut sharply 1/4" smaller than sheet.</p>
BUILD-UP OF COATING AT TRAILING EDGE OF SHEET	<p>Applicator roller is not at same speed as blanket.</p> <p>Blanket and back cylinder are set too tight.</p> <p>Thick ink film under coating is not stable.</p>	<p>Check roller speed and adjust packing to minimize speed difference.</p> <p>Adjust for "kiss" impression to sheet.</p> <p>Increase setting speed of ink, run dryer, use stronger, tighter body inks.</p>
CRACKING OR ALLIGATORING OF COATING DURING DRYING	<p>Coating is not "wetting" ink properly.</p>	<p>Reduce wax, use only PE wax, or use NO WAX inks.</p>



PROBLEM	SYMPTOM	SOLUTION
CRACKING OR ALLIGATORING OF COATING DURING DRYING continued	Coating used is drying too fast compared to ink. Coating being used is too hard - brittle.	Reduce setting on hot air knives. Check with ANCHOR to add plasticizer or switch to more flexible coating. Consult ink supplier about waxes being used in ink.
CRAWLING, FISH EYES, OR PINHOLING OVER INK	Coating is not wetting ink. Defoamers, silicones, etc. are migrating out of coating causing fish eyes.	Coating does not contain adequate "wetting agents." Consult with ANCHOR. Consult with ANCHOR for lab test of coating.
DRYING PROBLEMS IN THE DELIVERY - EVEN THOUGH "NOTHING" HAS CHANGED FROM THE LAST JOB	Problems with drying equipment. Job requirements (amount of ink/coating, press speed, paper hold out) have exceeded dryer capacity. High relative humidity has reduced the ability of the dryer to remove water from coating.	Check output of lamps, warm air knives, ensure exhaust is not restricted. Switch to faster drying coating. Minimize ink film thickness. Reduce coating weight. Adjust warm air knives for maximum output. Reduce press speed. Increase warm air knives to compensate. Use faster drying coating.

PROBLEM	SYMPTOM	SOLUTION
<p>BLOCKING OR SCUFFING IN THE DELIVERY</p>	<p>Slow drying over heavy ink coverage.</p> <p>Too much moisture in the sheet slows absorption of water from the coating into the sheet.</p> <p>Coating feels “tacky” in the delivery.</p> <p>A partial drum coating is being used.</p> <p>Too much coating is being run.</p>	<p>Check and adjust IR output for correct load temperature. Try stronger, tighter body ink for more stability under coating.</p> <p>Use faster drying coating, but be cautious of cracking.</p> <p>Store paper under controlled conditions or only open packages before use.</p> <p>Specify coating that does <u>not contain solvents like butyl cellosolve</u>.</p> <p>Coating may have thickened. Check viscosity and pH, reduce as required or mix with fresh coating.</p> <p>Check at trailing edge for excess bead and turn coater down.</p>



PROBLEM	SYMPTOM	SOLUTION
BLOCKING OR SCUFFING IN THE DELIVERY continued	<p>Heavy ink coverage will cause greater coating “hold out” and slower setting.</p> <p>Very high gloss coating is being used.</p> <p>Not enough spray powder.</p> <p>Ink/coating not set well enough at delivery.</p> <p>Load temperature is higher than the softening point of the coating.</p> <p>Residual solvents are “re-softening” set coating.</p> <p>Solvents or alcohol substitutes are “cooking out” of heavy ink.</p>	<p>Use faster drying coating or run slower, to allow longer “set” time.</p> <p>Coating is softer and slower setting. Compensate with more air or slower press speed.</p> <p>Some coating jobs still require powder. Check setting.</p> <p>Use faster setting ink or harder coating.</p> <p>Reduce load temperature and compensate for heat given off during ink drying. Reduce load height.</p> <p>Specify coating with no solvents and minimize alcohol substitutes.</p> <p>Run dryer and consult ink or fount supplier.</p>

PROBLEM	SYMPTOM	SOLUTION
BLOCKING OR SCUFFING IN THE DELIVERY continued	<p>Job blocks at the bottom of the load due to adhesion from excess pressure.</p> <p>Work&Turn blocks after second side because first side is sealed.</p>	<p>Reduce load height, rack loads at 8-12."</p> <p>Increase time before second pass to allow ink/coating to harden. Reduce coating weight for second pass. Reduce load temperature on second pass to prevent softening. Use harder/faster setting coating. Allow to dry longer before handling. Do not store work under hot/humid conditions.</p>
BLOCKING IN THE LOAD OR LATER DURING CONVERTING OR STORAGE	<p>Job blocks during converting or in storage because ink/coating is still too soft.</p>	<p>Allow work to dry completely before wrapping and shipping.</p>
COLOR SHIFTS WITH REFLEX BLUE, RHODAMINE, OR VIOLET INK.	<p>Inks contain dyes that can fade when exposed to ammonia or amines in coatings.</p>	<p>Ask your ink supplier for drawdowns to test the coating on, before printing the job.</p> <p>Use all pigment based equivalent inks that simulate PMS colors.</p>



PROBLEM	SYMPTOM	SOLUTION
EXCESSIVE "DRY-BACK" OR LOSS OF GLOSS	Coating is "soaking" into paper or ink.	Use sheet with better hold-out. Consult with ink manufacturer. Apply heavier layer of coating if possible. Specify coating that is resistant to "dry-back."
FOAMING	Level in reservoir pan is too low. Air is being introduced into circulating system. Recirculating pump is running too fast.	Increase coating level in pan. Check seals on pump and lines for air leaks. Eliminate "free-fall" return into drum. Reduce pump speed to just keep pan full.
MOTTLE IN COATING (MORE OBVIOUS IN SATIN AND MATTE JOBS)	Ridges in the direction of travel caused by too little coating. Coating is being pushed into the ink. Viscosity is too low and coating is "soaking into job." Mottle only over the ink caused by poor wetting of coating.	Increase amount of coating. Adjust blanket to back cylinder to "kiss impression." Reduce pressure to get uniform application. Specify higher viscosity coating. Check type and amount of wax or silicone in ink. Limit to PE wax.

PROBLEM	SYMPTOM	SOLUTION
OFFSETTING OF INK	<p>Too little coating to “seal” ink.</p> <p>Heavy films of ink are setting too slowly to be stable.</p> <p>Too little spray powder.</p> <p>Excessive pressure from high loads.</p> <p>Coating too thin.</p> <p>Too much coating is being applied to lay smoothly.</p> <p>Viscosity too high to flow out well.</p>	<p>Apply more coating.</p> <p>Specify fast setting ink, stronger ink, or tighter body. Run as dry as possible to prevent over emulsification.</p> <p>Use limited powder to prevent adhesion.</p> <p>Reduce load height or rack loads.</p> <p>Do not reduce viscosity.</p> <p>Reduce coater speed to apply a thinner film.</p> <p>Reduce coating viscosity by 5 seconds and test.</p>
ORANGE PEEL APPEARANCE	<p>Coating is drying too fast to flow out.</p>	<p>Reduce warm air supply.</p> <p>Specify a medium drying speed coating.</p>



PROBLEM	SYMPTOM	SOLUTION
RINGS OR RIDGES ON ROLLERS, BLANKET OR SHEET	<p>Not enough pressure between roller and blanket.</p> <p>Not enough coating.</p>	<p>Increase pressure and check for any low areas in roller or blanket.</p> <p>Turn up coater or increase viscosity.</p>
SANDPAPER "FEEL" OF JOB	<p>Spray powder is pushed into coating that is still tacky.</p>	<p>Increase warm air or run job slower.</p> <p>Use faster drying coating. Specify coating without solvents to reduce tackiness during drying. Reduce amount of powder.</p>
SHEETS CURL	<p>Stock is absorbing too much water from coating.</p> <p>Excessive heat applied after coating.</p>	<p>Specify a "high solids" coating to apply less water.</p> <p>Check water content of stock. If too dry, stock can distort from large water pickup. Consult with ANCHOR for more flexible coating.</p> <p>Check for proper load temperature and do not exceed 105°F.</p>

PROBLEM	SYMPTOM	SOLUTION
SHEETS CURL continued	Mechanical distortion. Image wrinkle or distortion.	Use paper stock of 80 lbs. or higher. Run the coating as near the edge as practical to provide a uniform size change in the sheet. Check the setting of sheet guides for correct settings. On heavy coverage, reduce water pickup of the ink to minimize size change in stock.
SPITTING OR SLINGING OF COATING	Coating is building up on the ends of rollers.	Check that coating is at proper application temperature. Check coating for proper viscosity. Clean ends of rollers and check roller speed.
THICKENING OF COATING	Partial drum has lost water or ammonia.	Keep drums closed when not in use. Check that pH is 8.0 to 8.5 and add ammonia if required. Reduce viscosity to original value. Mix partial drum into fresh coating and adjust viscosity as needed.



PROBLEM	SYMPTOM	SOLUTION
UNEVEN COATING APPLICATION	<p>Uneven pressure between rollers, blanket, and sheet.</p> <p>Dried coating is causing defects.</p> <p>Blanket or rollers have low spots.</p>	<p>Check roller settings, blanket packing, and impression cylinder pressure. Adjust to kiss contact.</p> <p>Clean rollers, blanket, and impression cylinder.</p> <p>Check and replace as required.</p>