

Cyrel® Photopolymer Printing Plate Troubleshooting Guide

Problem	Identification	Press-Related	Plate-Related
Support delamination	Polyester backing and polymer separates	Plate not varnished/high tack tape Incompatible ink system Aggressive solvents Rough handling	Poor plate trimming procedures Insufficient back exposure Raw material
Premature wear	Broken dots Rounded shoulders Abrasion Missing dots on print	Overimpression Incompatible inks/solvents Improper makeready TIR out of round Anilox roll out of adjustment Abrasive substrate Low ink pH Surface speed mismatch Poor mounting techniques Anilox burn	Insufficient exposure Overfinishing Insufficient drying Improper storage
Relief out of specification	Floors too high		Wrong back exposure time (due to new lamps) Insufficient washout Back exposure too long
	Floors too low		Old lamps Insufficient back exposure No back exposure
Release layer not washing off	Shiny areas on image		Processor brushes too soft Incorrect washout solution temperature Washout solvent out of spec Incorrect brush pressure Insufficient washout time Insufficient solvent replenishment Dirty solvent/tank
Floors of plate are not clean	Monomer deposits on printing surface Uneven floor Reverses filled in Cracks in floors "Soupy" or "muddy" floors		Insufficient washout times Dirty washout solution Under replenishing Improper double toweling Improper brush setting Insufficient back exposure Weak exposure bulbs
Extended washout times	Washout times longer than normal		Washout solution out of specifications Dirty solution Under replenished Wrong brush settings Low drum speed Incorrect washout solution temperature
Film negatives out of contact	Lines and type get heavy in areas Shiny spots in process areas Plate mottle Reverses filled in		Matte level too low on film No matte at all on film Vacuum masking strips not being used Poor vacuum Wrong type of film Poor platemaking technique

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Missing or poorly formed image Broken characters Gouges	Missing/damaged characters Wiggly lines Holes in image surface Chipping	Press bounce Damaged during mounting Excess plate scrubbing Improper cleaning tool Overimpression Uneven press setting Abrasive substrate	Scratches in negative Opaqued out in negative Masked out during exposure Dirt specks on negative Out of specification negative Insufficient back exposure Insufficient main exposure Excessive washout time Excessive washout brush pressure Overfinishing
Thickness non-uniformity	Non-uniformity when plate is mic'd/proofed Uneven ink coverage on press	See "Uneven printing"	Insufficient exposure Insufficient drying time Dryer temperature too low Excessive washout Raw material Improper storage Back of plate not clean
Surface defects	Cracks in floor Cracks in printing surface	 Incompatible ink/additives/ plate cleaners	Whitelight exposure Incompatible plate cleaner Insufficient washout Overfinished Ozone level too high Overwashed and under-exposed Ozone level too high Improper storage Plates dried incorrectly Whitelight exposure Overfinished
Ridges on plate	Raised areas on screens		Insufficient back exposure Negative incorrect
Dot variation	Dots of the same value are varying in size on plate		Varying bulb intensity Defective exposure ballasts All bulbs not working Heat buildup in exposure bed (poor ventilation) Poor vacuum Exposure unit not warmed up Incorrect dot value on negative
Tacky plates	Plates are sticky to the touch	Incompatible ink/plate cleaner	Finishing lamps are weak Finishing time insufficient Insufficient washout Insufficient drying Insufficient back exposure
Orange peel	Pattern on image surface		Washout solvent out of spec Dirty solvent/under-replenishment Washout time too long Insufficient exposure

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Problem	Identification	Press-Related	Plate-Related
Reverses filling in	Shallow reverses		Over main exposure Negative out of spec Insufficient washout
Extended exposure times	Exposure times longer than normal		Coversheet out-of-specifications Film out-of-specifications Lamp age Different product Different run number
Surface dimples	Small depression in plate surface		Dust/dirt in packaging Raw material
Heavy printing, start of run	Bold type Dark hi-lites Plugged reverses	Uneven plate mounting Insufficient meter roller pressure Too soft meter roller High volume anilox roller Excess anilox pressure Excess print pressure	Incorrect negative values Negative out of contact during exposure Veiled negative Low-density negative Over main exposure Uneven plates
Heavy printing, during run	Bold type Dark hi-lites Plugged reverses	High ink viscosity Dirty ink Excess anilox pressure Excess print pressure Plate swelling (due to ink; solvent; press heat) Doctor blade unit backing off from anilox (sometimes caused by print unit vibration or faulty adjustment) Coarse substrate	Plate is worn
Uneven printing	High/low spots	Uneven mounting tape Dirt, bubbles between plate/tape/cylinder Dirty/worn gears TIR out of spec* Printed image mounted over tape seam	Washout residue on polyester backing Insufficient plate drying Unregulated/high heat in dryer Uneven raw material Plate relief too high/Plate floor too low
Lateral streaks or gear marks	Light and dark print across the web	Image layout (large solid across cylinder) Press speed/bounce Loose or old demount cylinders Gears worn or inaccurate Printing unit lock not tight Hard mounting tape Wrong thickness stickyback Low viscosity ink No bearer bars	Too high relief Uneven plates Low durometer plate**
Circumferential streaks	Light and dark print around the cylinder	Damaged doctor blade Dried ink particles caught in metering system	

*TIR of $\pm .0005$ is industry standard. Tolerance should be tighter for process work.

**For best results, a high durometer plate, e.g., Cyrel® HOS, and low density cushion work best.

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Problem	Identification	Press-Related	Plate-Related
Poor ink lay	Mottled/spotty Circumferential streaks	Low ink viscosity Paper dust Ink drying too fast Dirty or pitted impression cylinders Contaminated ink Anilox too fine/worn Doctor blade pressure too heavy Scored meter roller Scored anilox roller Ink buildup on back plate Worn/nicked doctor blade Doctor blade starving for ink Spent ink	Plate over-finished Poor plate rinsing/wiping
Poor ink transfer	Insufficient ink transferred to substrate	Over-reduced ink Low-viscosity ink Ink drying too fast Dryer air spillage between colors Low volume anilox Dirty anilox roller—ink dried at bottom of cell Incompatible substrate Improper impression Tape too soft	Overfinished plate Residual solvent on plate (poor plate rinsing)
Borders of image print first	Hard edges	Mounting tape too hard Press bounce TIR out of round	Insufficient back exposure (relief too high) Insufficient main exposure
Plate changes thickness on press	Plate swelling and/or tackiness	Incompatible proof inks, solvents Incompatible press inks, additives, wash-up solvents Excessive press temperature (CI drum) Incompatible/excessive defoamer	Insufficient drying Insufficient finishing
Non-image area prints up	Background printing	Plate mounted too loose Kinks in polyester backing Bubbles, dirt under plate during mounting Low tack mounting tapes Excess printing pressure	Low-density negative Excess back exposure/low relief Insufficient washout Low brush pressure
Dirty Printing	Images are not sharp Dots bridging Fill-in Halo	Overimpression Ink drying too fast Ink pH too low Low viscosity ink High volume anilox Faulty doctor blade adjustment Overextended, old ink Dusty substrate	Plate too soft Insufficient finishing Underexposure Uneven/worn/cupped plate

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Problem	Identification	Press-Related	Plate-Related
Moiré	Undesirable dot pattern in process printing	Anilox screen count too similar to plate screen count. For example, 165 line anilox used with an 85 line screen plate can cause moiré due to harmonic $85 \times 2 = 170$ —too close to 165 line. Improper screen angles	
Pinholing on press	Small holes in solid print	Stickyback too soft Ink drying too fast Anilox screen count too high Worn anilox Incompatible substrate Excessive/incompatible defoamer Dust/dirt impression on roller	Insufficient main exposure Plate durometer too high
Pinholing on plate	Pits in plate image		Dust/dirt/lint under negative or vinyl coversheet Low humidity Poor ventilation Poor housekeeping
Platelifting	Edge lifting Plate curl	No edge sealant Low tack mounting tape Burrs on polyester backing Insufficient hand pressure when mounting Oil, greasy plate cylinder Excess wash-up solution Incompatible ink/solvent/cleaners Overimpression	Too low relief Insufficient washout Excessive heat in dryer
Images do not register	Misalignment color to color	Different plate cylinder diameters Poor mounting techniques Stock stretching Stock shrinkage (excess heat) Press configuration (stack or inline press alignment) Bearing housing dirty Poor web tension Moist substrate* TIR out of spec Stickyback uneven Wrong cylinder diameter Gear worn or loose	Misregistered negative Excess plate drying temperature Different plate thickness Excessive drying Insufficient drying
Plates don't fit	Image does not match package or die cut	Wrong mounting tape thickness Wrong plate cylinder Wrong plate cylinder gear Off pitch Excess heat Poor tension control	Non-distorted negatives Negative not distorted properly Wrong plate thickness Unregulated/high heat in dryer

*When printing on paper or board, humidity control in the press room is very important to achieve good register.

Coating Plates Troubleshooting Guide

Problem	Likely Cause	Recommended Action
Misregister	Incorrect print length	Check print length to films. Set packing.
	Over tightening	Tighten with torque wrench to recommended settings.
	First print position misaligned	Realign coating plate on cylinder.
	Distortion of coating plate	Check distortion with Tradeshop.
	Sheet movement	Run bearer bars to support sheet.
	No distortion test carried out	Order test immediately.
	Incorrect coating plate packing	Reset as per test results.
Halos around image	Over impression	Reduce pressure between the printed substrate and the Cyrel® plate.
	Applicator roller nip too tight	Reduce nip line.
	Too much coating	Reduce fountain roller speed.
Coating buildup on lead or tail of image	Too much coating	Reduce fountain roller speed.
	Applicator roller speed following incorrect	Consult machine manufacturer.
	Coating too viscous	Adjust according to supplier specs.
	Excessive pressure between applicator roller and blanket	Adjust applicator roller away from blanket. Kiss impression.
	Blanket packing not trimmed properly	Cut packing at least 1/4 inch shorter than sheet length.
	Excessive pressure between blanket and impression cylinder	Adjust blanket pressure. Kiss impression.
	Applicator roller speed faster than blanket surface speed	Adjust applicator roller speed or reduce blanket speed by increasing packing behind blanket. Applicator roller and blanket surface speeds should be the same.
Irregular coating films	Uneven pressure between coater rollers	Adjust coater rollers. Kiss impression.
	Uneven pressure between applicator roller and blanket	Adjust applicator roller to blanket. Kiss impression.
	Uneven pressure between blanket and impression	Adjust pressure and/or check for low areas, smashes in blanket and packing.
	Dried coating within coating system	Clean rollers, blanket and impression cylinder.
	Stock may have a rough or poor surface holdout	Replace stock.
Ring bands or raised strips of coating on rollers or blanket	Insufficient pressure between rollers or blanket	Adjust rollers and blanket settings.
Accumulation of ink on blanket cylinder	Coater not going on impression soon enough	Applicator roller should make contact prior to or at same time unit goes on impression.
	Insufficient coating applied to blanket	Increase roller speeds to apply more coating. Raise viscosity of coating.

Coating Plates Troubleshooting Guide (continued)

Problem	Likely Cause	Recommended Action
Orange peel or rough surface appearance (mottle)	Excessive amount of coating applied to the blanket	Reduce roller speeds to apply less coating.
	Coating viscosity too high (too thick)	Reduce coating viscosity (add water).
Cratering/Pinholes	Coating not rewetting or trapping over the wet ink due to waxes in ink or poor wetting of coating	Use wax-free or poly-wax inks only or contact your coating supplier for coating wetting additive.
Foaming problem	Level in reservoir pan is too low	Increase coating level in reservoir pan.
	Air being injected into circulating system	Check pump seals for air leaks and reduce speed of pump.
	Insufficient defoamer	Add defoamer per supplier's recommendation
Ink buildup on plate/ Strike through	Over impression	Reduce pressure.
	Not enough coating	Increase coating volume.
	Plate not wet before printing	Set machine to apply coating earlier.
	Plate sticky	Incorrect solvent may have been used.
	Surface tension of coating too high	Use coating with surface tension below 30 dynes/cm.
	Incompatible ink formulation	Change ink.
Separation of polymer from base	Incorrect solvent use	Use recommended cleaners only.
	Over impression	Reset impression/back cylinder.
	Applicator roller nip too tight	Reset roller.
Cracking	Machine sequence	Change sequence.
	Ink volume too great	Reduce fountain roller speed.
	Overfinished plate	Reduce finishing time.
	Whitelight exposure	Follow proper storage procedure.

Digital Plate Troubleshooting Guide

Problem	Recommended Actions
Poor quality image on finished plate	<ol style="list-style-type: none">1) Check image focus—are mask edges sharp and dense?2) Ensure correct plate thickness was entered in the machine parameter3) Was the correct output advance rate selected?4) Proper drum speed used while imaging5) Correct bump up curve implemented for ripped files6) Make sure that correct mask densities are achieved for imaged plates
Wrong or garbled image on plate	<ol style="list-style-type: none">1) Use a bitmap file viewer to ensure that the proper image made it through the rip2) Make sure that the data in the output file is in the correct orientation
No image on plate	<ol style="list-style-type: none">1) Make sure that laser is functional2) Ensure correct focus3) Ensure proper laser power4) Check proper plate thickness5) Check integrity of output file
Image in wrong place on plate	<ol style="list-style-type: none">1) Was the image placed correctly in the output file?