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Corrugated Printing Troubleshooting Guide

IMPROVING INK FLOW FOR ACCURATE IMPRESSIONS

In the corrugated printing industry, you work hard to improve the quality of your printing. You're under increased pressure to maximize productivity, decrease waste and run efficiently to increase the bottom line. Your customers rely on your expertise in ink handling and maintenance in order to maintain the highest quality of the printed product. You experience a number of issues that keep you from reaching these goals. This guide will help you identify the source of your difficulties and will provide solutions to help you solve your printing problems.

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INTRODUCTION

As the demands of their customers change, corrugated printers are under increased pressure to improve productivity, decrease waste, run efficiently and maintain a profitable bottom line.

Corrugated printers historically have always been on the cutting edge of technology: Incorporating newer, faster presses, more reliable and durable components and consumables and state-of-the-art control systems, all in an effort to improve the quality of their printed products while maintaining costs necessary to bring the product to market. Despite taking these steps, corrugated printers still experience a number of print-related issues that are keeping them from reaching their cost and quality goals.

This troubleshooting guide, compiled by a number of different suppliers and manufacturers to the corrugated print industry, is designed to help you identify the cause and provide a solution to problems experienced by printers every day. It is not intended to be a “how to fix” guide, rather a template you can use to recognize and resolve print related issues before they get out of hand.

Abrasion

Problem: The sticking together of any two materials, e.g., adhesion of ink to paper

CAUSE	SOLUTION
1. Viscosity too high	1. Reduce viscosity consistent with acceptable printability
2. Viscosity too low	2. Add virgin ink to fountain
3. Ink surface tension too high	3. Consult your technical sales representative
4. Incorrect ink system for substrate	4. Ensure that the correct ink for the substrate is being used
5. Ink drying too slow	5. Ensure ink formulation is correct, replace if necessary
6. pH is out of spec	6. Check and adjust pH to meet job specs
7. Stock damaged due to poor handling	7. Replace with new stock, review storage procedures

Dark or Dirty Color

Problem: Color darker than proof, contaminants visible on substrate

CAUSE	SOLUTION
1. Viscosity too high	1. Reduce viscosity consistent with acceptable printability
2. Ink color concentration too high	2. Reduce ink film thickness, add extender
3. Ink film too thick	3. Reduce viscosity, increase metering, decrease anilox volume
4. Incorrect ink formulation	4. Ensure ink is correct for job, consult with supplier or tech
5. Ink contamination	5. Replace with fresh ink

Dirty Print- Dot Bridging- Feathering

Problem: Dots or spots on printed image

CAUSE	SOLUTION
1. Anilox volume too high	1. Replace with correct anilox roller
2. Print size to anilox cell count inadequate	2. Revise art, screen and plate for press capabilities
3. Excessive plate impression	3. Reduce impression to substrate
4. Excessive anilox to plate impression	4. Check plate level, adjust anilox impression
5. Paper dust contamination	5. Clean plates and station, filter ink, check slit blade
6. Ink drying too fast	6. Check and increase ink pH
7. Ink viscosity too high	7. Reduce ink viscosity
8. Plates to soft or worn	8. Use harder durometer plates or replace

Dirty Print- Fill in

Problem: Image bleeds into non-image area, print edges not sharp

CAUSE	SOLUTION
1. Plates are uneven, worn, glazed or mismatched	1. Clean or replace plates or mount
2. pH too low	2. Check & adjust pH, reduce viscosity to acceptable level
3. Ink drying too fast	3. Check & adjust pH
4. Printing plate too soft	4. Replace with higher durometer plate
5. Ink contaminated by paper dust	5. Replace ink, filter new ink, clean print station
6. Ink viscosity too high	6. Adjust viscosity to meet standard
7. Excessive plate impression	7. Reduce plate to substrate impression

Fisheyes

Problem: A defect appearing as glazed, scalloped or translucent spot

CAUSE	SOLUTION
1. Cell volume too great	1. Reduce cell volume
2. Ink viscosity too high	2. Adjust ink viscosity to acceptable print quality
3. Incorrect cylinder etch or engraving	3. Ensure proper cylinder has been pulled for job
4. Incorrect substrate or stock for job	4. Check stock or substrate
5. Ink pigmentation too strong	5. Add appropriate extender

Foaming

Problem: Too much air in ink causing print issues

CAUSE	SOLUTION
1. Pump or seal leaks	1. Check pump suction side for seal or hose leaks
2. Excessive pump pressure	2. Reduce pump pressure to minimum allowable
3. Excessive ink agitation	3. Reduce mixer speed, keep return lines submerged
4. Chamber not sealed, leaking air	4. Check and replace blades, ensure pump pressure fills chamber
5. Viscosity too high, or too low	5. If too low add fresh ink, if too high adjust to meet job spec
6. Ink formulation incorrect or contaminated	6. Ensure ink is correct for job, defoamer is correct formulation

Halos

Problem: An undesirable peripheral outline of the printed image

CAUSE	SOLUTION
1. Entire image halos	1. Reduce plate substrate impression, check plate durometer, reduce anilox impression, or check plate mounting & level
2. Leading edge halos	2. Reduce anilox to plate pressure, check plate mounting & level
3. Distorted plate wrap	3. Remount plate to cylinder, check warped or worn plate
4. Plates are uneven, worn, mismatched, hard	4. Check durometer or clean & replace plates as necessary
5. Ink viscosity (film) too high	5. Adjust viscosity to meet job specs
6. Ink film applications are uneven	6. Check & adjust ink metering, print & anilox impression, replace plates

Hickeys

Problem: Foreign particles are adhering to the printed substrate

CAUSE	SOLUTION
1. Ink contaminated	1. Replace with fresh ink
2. Check station for debris or fibers	2. Clean station before and after job run
3. Check for buildup on blade	3. Check, clean and/or replace blade

Inconsistent Print Color

Problem: Print color change throughout run

CAUSE	SOLUTION
1. Viscosity too high	1. Adjust viscosity consistent with acceptable printability
2. Viscosity too low	2. Add virgin ink to fountain
3. Foam	3. Check and adjust mixer and/or pump
4. Incorrect substrate addition during run	4. Ensure that the correct stock is pulled for the job
5. pH changes during run	5. Check and adjust pH to meet job specs
6. Color shifts between stations	6. Check and adjust viscosity to meet station configurations such as anilox volumes, cell count & atmospheric conditions

Mottle

Problem: Spotty or uneven appearance of printing, mostly in solid areas

CAUSE	SOLUTION
1. Viscosity too high	1. Reduce viscosity consistent with acceptable printability
2. Viscosity too low	2. Add or replace ink to tank
3. Incorrect plate impression	3. Adjust plate impression, check plate hardness
4. Substrate worn, damaged or finish incorrect	4. Replace stock
5. Anilox, wiper roller or plate is dirty or damage	5. Check, clean & replace as necessary
6. Ink is contaminated	6. Clean press station, replace and filter ink
7. Ink formulation is incorrect	7. Ensure ink is correct for press run, replace with fresh ink
8. pH is too low	8. Check and adjust pH
9. Ink is foaming	9. Check for air leaks, mixer speed, press speed

Poor Trapping

Problem: Ink is not drying, or drying too fast causing print issues, also registration

CAUSE	SOLUTION
1. **First station:** Viscosity too high	1. Reduce viscosity consistent with acceptable printability
2. Heavy ink film, insufficient metering	2. Adjust metering to reduce ink film
3. Ink dries too slow	3. Rerformulate ink to improve drying speed
4. Anilox volume too high	4. Replace with lower volume anilox roller
5. Press running too fast	5. Reduce press speed
6. **Subsequent Stations:** Ink not covering	6. Increase 2nd down ink to higher viscosity than 1st down
7. Not printing due to fast drying ink	7. Reduce with glycol or appropriate additive
8. Ink not drying	8. Reduce film thickness, adjust metering
9. Ink incompatible with other stations	9. Use ink specified for print job, switch trapping sequence
10. pH is out of spec, too high or low	10. Check and adjust pH to recommended spec

Striations

Problem: A fine streaky pattern of parallel lines, usually in the direction of the web

CAUSE	SOLUTION
1. Anilox rolls are incorrect	1. Clean or replace anilox roller
2. Viscosity too low	2. Add or replace ink to tank
3. Incorrect plate impression	3. Adjust plate impression
4. Printing plate too hard	4. Check and replace with softer durometer plate
5. Printing plate glazed	5. Check, clean & replace as necessary
6. Ink formulation is incorrect	6. Ensure ink is correct for press run, replace with fresh ink
7. pH is too low	7. Check and adjust pH

Tracking/ Ink Smearing

Problem: Uneven color across the substrate

CAUSE	SOLUTION
1. **First station:** Viscosity too high	1. Reduce viscosity consistent with acceptable printability
2. Heavy ink film, insufficient metering	2. Adjust metering to reduce ink film
3. Ink dries too slow	3. Rerformulate ink to improve drying speed
4. Anilox volume too high	4. Replace with lower volume anilox roller
5. Press running too fast	5. Reduce press speed
6. **Subsequent Stations:** Ink not covering	6. Increase 2nd down ink to higher viscosity than 1st down
7. Not printing due to fast drying ink	7. Reduce with glycol or appropriate additive
8. Ink not drying	8. Reduce film thickness, adjust metering
9. Ink incompatible with other stations	9. Use ink specified for print job, switch trapping sequence
10. pH is out of spec, too high or low	10. Check and adjust pH to meet job specifications

Uneven Print

Problem: Spotty or uneven appearance of printing, mostly in solid areas

CAUSE	SOLUTION
1. Ink metering roll out of adjustment	1. Adjust roll
2. Light to dark from roll parallel	2. Parallel anilox, metering rolls and blades
3. Streaks from worn doctor blade	3. Replace doctor blade
4. Streaks from dirty or damaged anilox roller	4. Clean and/ or replace anilox roller
5. Streaks from low ink flow	5. Increase ink flow
6. Loose plate or plate mount	6. Check and re-mount plate
7. Roll bounce from gears or bearings	7. Check drive train repair as necessary

Washboard Print

Problem: Consistent variations in the caliper of the substrate

CAUSE	SOLUTION
1. Plate impression is incorrect	1. Adjust plate to substrate impression
2. Substrate surface finish ink wetting & lay-down	2. Ensure ink formulation is correct for substrate
3. Ink film thickness is too thick for substrate	3. Reduce film thickness or replace substrate
4. Ink viscosity is too low	4. Check and adjust viscosity to meet job specs
5. Ink formulation is incorrect	5. Ensure the ink employed is correct for the job & substrate

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