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Paper Packaging Troubleshooting Guide

working for you.

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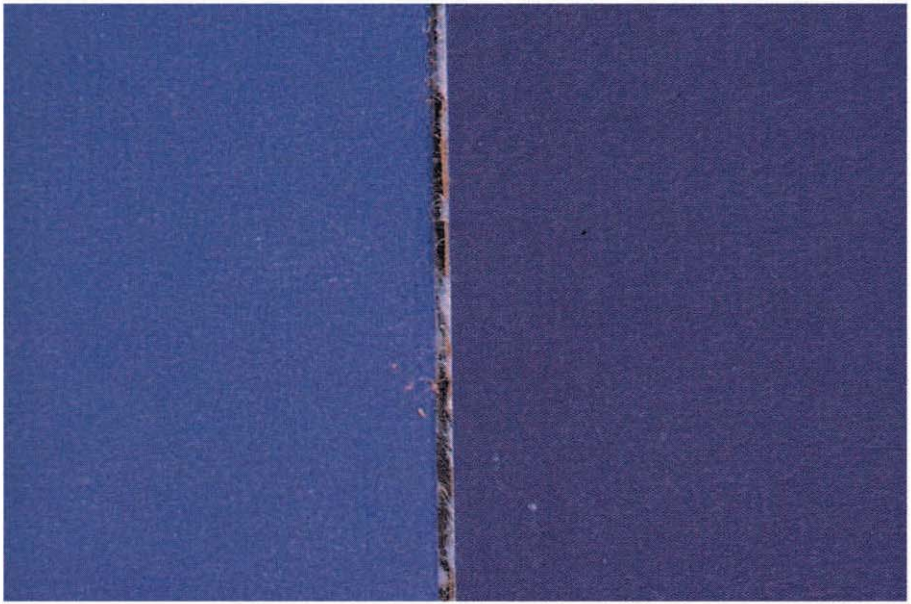

Dark or Dirty Print Color

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Dark or Dirty Print Color

PROBLEM

1. Ink viscosity too high
2. Ink colorant concentration too high for press or job configuration
3. Ink film too thick
4. Ink contamination from prior color
5. Ink formulation is incorrect

SOLUTION

1. Lower ink viscosity
2. Add extender to the ink. Reduce ink film thickness
3. Reduce ink film thickness by lowering ink viscosity, increasing ink metering effectiveness, decreasing machine speed or decreasing anilox volume
4. Thoroughly clean press station and replace ink
5. Consult your Sun Chemical Representative

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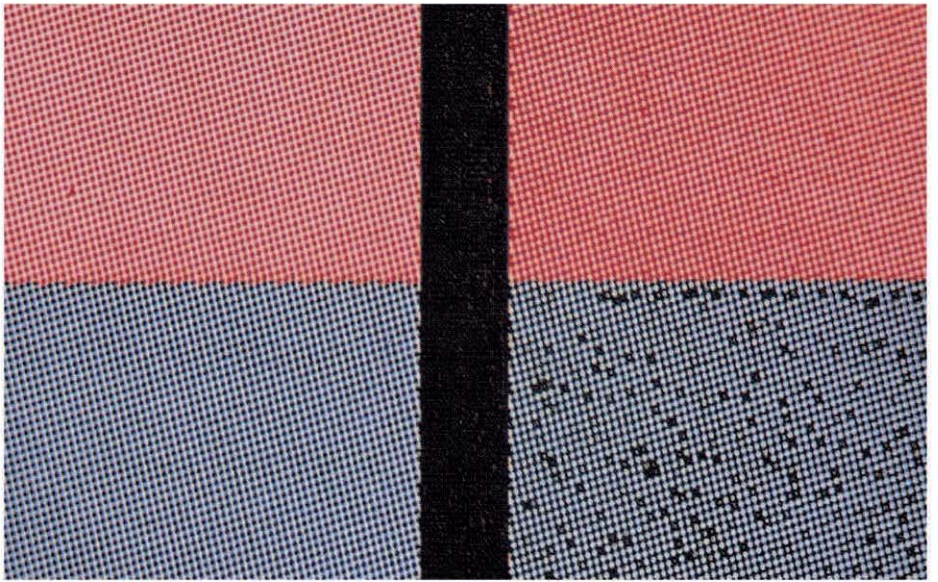

Dirty Print Dot Bridging

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Dirty Print - Dot Bridging

PROBLEM

1. Anilox volume too high
2. Ratio of dot size (print size) to anilox cell count is inadequate
3. Plate impression is excessive
4. Anilox to plate pressure is excessive
5. Paper dust from board or pressroom collects in the ink and sticks to the plate
6. Ink pH is too low
7. Ink film is too thick for plate screen
8. Ink is drying too fast
9. Printing plate is too soft
10. Worn plates

SOLUTION

1. Reduce anilox volume
2. Revise art, screen and plates for press capabilities
3. Reduce plate to substrate impression
4. Adjust to reduce anilox impression. Check plate level
5. Clean press, plates and environment. Insure clean sharp slitting and sheeting
6. Check and adjust pH
7. Reduce ink film thickness by lowering ink viscosity, increasing ink metering or decreasing anilox volume
8. Add slow solvent, increase machine speed
9. Use plates with a harder durometer
10. Replace plates

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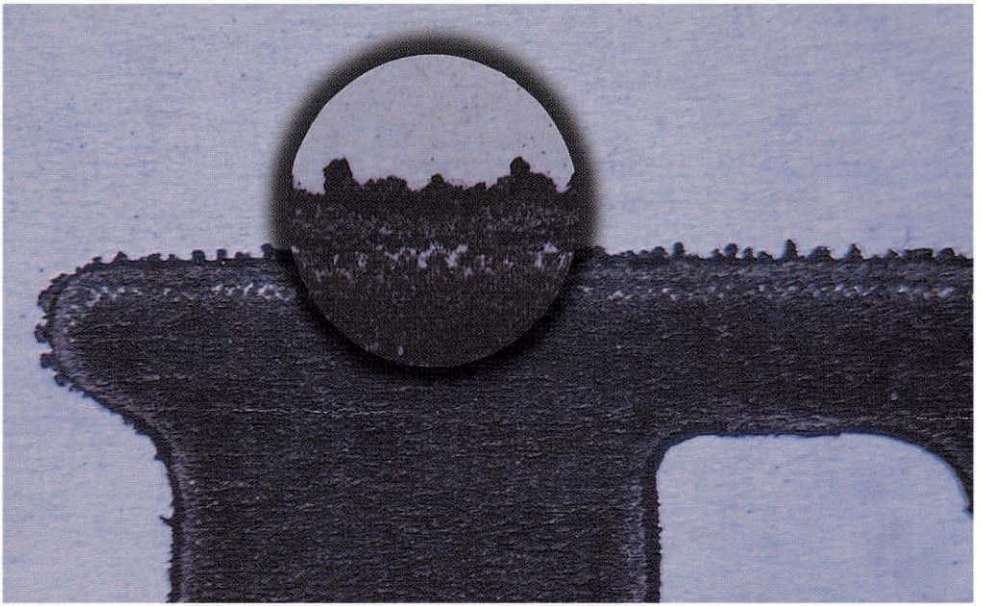

Dirty Print - Feathering

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Dirty Print - Feathering

PROBLEM

1. Excessive plate impression
2. Printing plate too hard
3. Anilox to plate pressure is excessive
4. Plates are not level, worn, cupped, glazed or mismatched
5. Ink film is too thick
6. Ink is drying too fast
7. Ink pH is too low
8. Paper dust collects in ink or sticks to plate
9. Ink film applications are uneven due to press or uneven plates

SOLUTION

1. Reduce plate to substrate impression
2. Use plates with a softer durometer
3. Adjust to reduce anilox impression. Check plate level
4. Level, build up, clean or replace entire mount
5. Reduce ink film thickness by lowering viscosity, increasing ink metering effectiveness or by decreasing anilox volume
6. Add glycol to slow drying or increase machine speed
7. Check and adjust pH
8. Clean press, plates and environment. Insure clean sharp slitting and sheeting
9. Adjust ink metering, print and anilox impressions, roll parallel or replace plates

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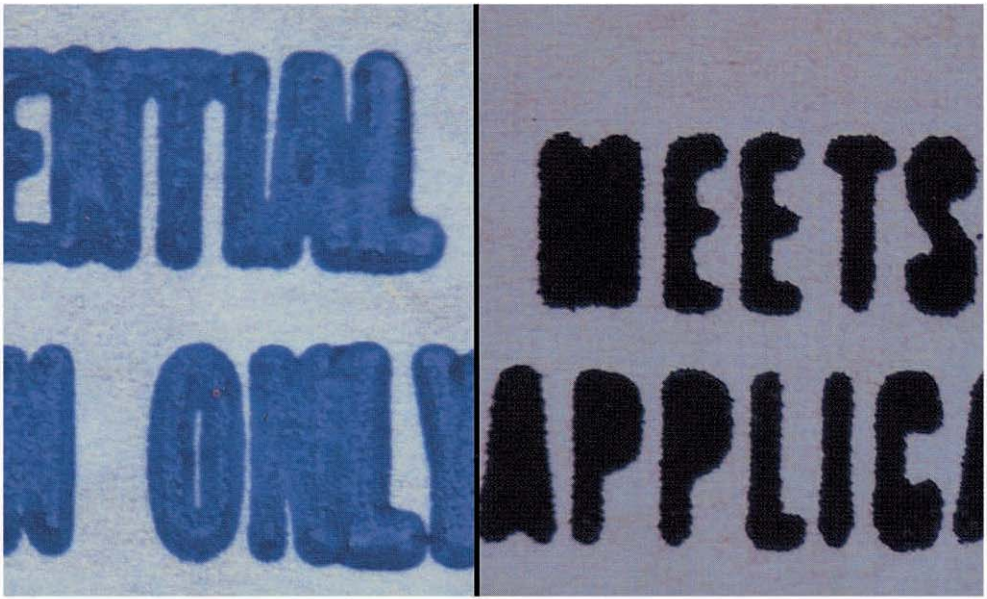

Dirty Print - Fill In

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Dirty Print – Fill In

PROBLEM

1. Plate impression is excessive
2. Plates are uneven, worn, cupped, glazed or mismatched (slugged)
3. Printing plate is too soft
4. Ink film applications are uneven due to press or plates that are not level
5. Ink film too thick for plate and art design
6. Positive or reverse type are too small for ink film thickness/metering
7. Paper dust collects in the press or ink and sticks to the plate
8. Ink pH is too low
9. Ink drying too fast

SOLUTION

1. Reduce plate to substrate impression
2. Level, build up, clean, replace plates or entire mount
3. Use a higher durometer plate
4. Adjust ink metering, print and anilox impressions, roll parallel or replace plates
5. Reduce ink film thickness by lowering ink viscosity, increasing ink metering effectiveness or decreasing anilox volume
6. Revise art, screens and plates for press capabilities
7. Clean press, plates and environment. Ensure clean, sharp slitting and sheeting
8. Adjust pH to correct setting
9. Add glycol or increase press speed

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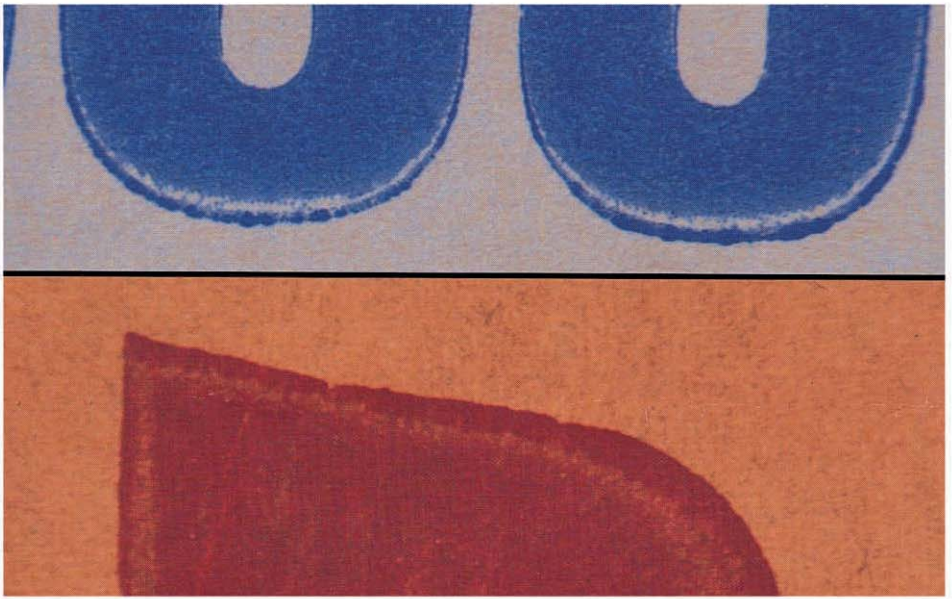

Dirty Print - Halos

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Dirty Print - Halos

PROBLEM

1. Entire image halos
2. Leading edge halos only
3. Plate wrap has distortion
4. Everything halos
   a. Plates are uneven, worn, cupped, glazed or mismatched (slugged)
   b. Ink film is too thick
   c. Printing plate is too hard
   d. Ink film applications are uneven due to machine or uneven plates

SOLUTION

1. Eliminate entire image halos by:
   a. Reducing plate to substrate impression
   b. Reducing anilox impression or checking plate level and mounting
2. Eliminate leading edge halos by
   a. Reducing anilox pressure to plate
   b. Checking level and mounting
3. Remount plate to fit cylinder tightly
4. Eliminate all halos by:
   a. Leveling, building up, cleaning or replacing plates or entire mount
   b. Reduce ink film thickness by lowering viscosity, increasing ink metering effectiveness or decreasing anilox volume
   c. Use plates with a softer durometer
   d. Adjust ink metering, print and anilox impression, roll parallel or replace plates

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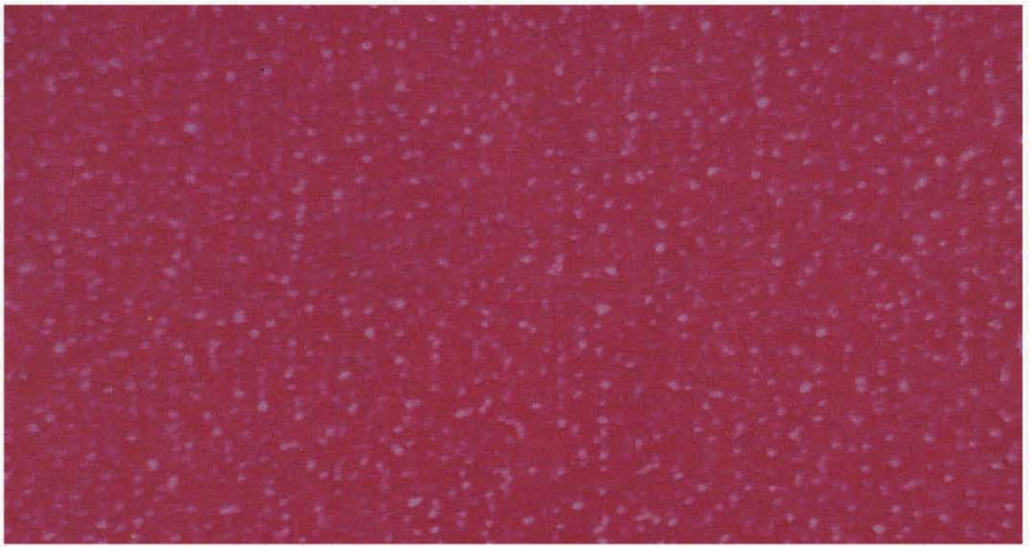

Fisheyes

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Fisheyes

PROBLEM	SOLUTION
1. Excessive defoamer added to the ink	1. Replace ink or add fresh ink without defoamer added
2. The defoamer added to the ink is incompatible	2. Replace ink or add fresh ink without defoamer added. Consult the local Sun Chemical Representative for recommended products or additives
3. Ink has excessive foam or microfoam	3. Eliminate foam or replace ink

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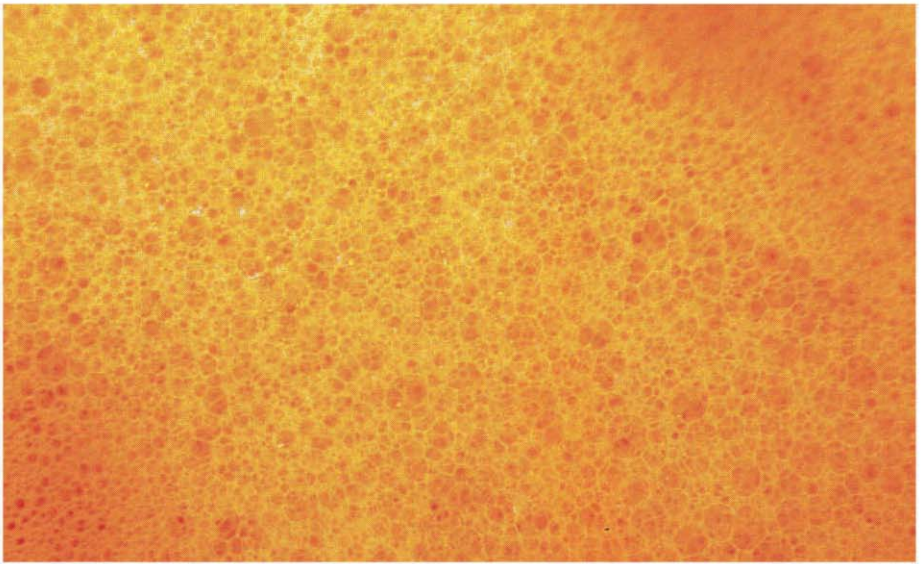

Foaming

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Foaming

PROBLEM	SOLUTION
1. Too much air being introduced into ink	1. Check for leaking pump seals or hoses on the suction side, repair as required
2. Pump pressure is excessive causing splashing and aeration	2. Reduce pump pressure to minimum required (Use pump volume, not pressure)
3. Agitation of ink is excessive causing splashing and aeration	3. Reduce pump or mixer speed to the minimum required and keep ink return lines submerged
4. Poor sealing of doctor blade assembly	4. Replace blades frequently. Adjust chamber for wipe and sealing. Adjust pumping to keep chamber full.
5. Too much water is being added to the ink	5. Raise ink viscosity by adding fresh ink
6. Ink viscosity too high	6. Lower ink viscosity to release trapped foam
7. Ink formulation is incorrect	7. Consult your local Sun Chemical Representative
8. Excessive foam	8. Spray a mist of Sun Chemical defoamer over the surface of the bubbles to break foam formation

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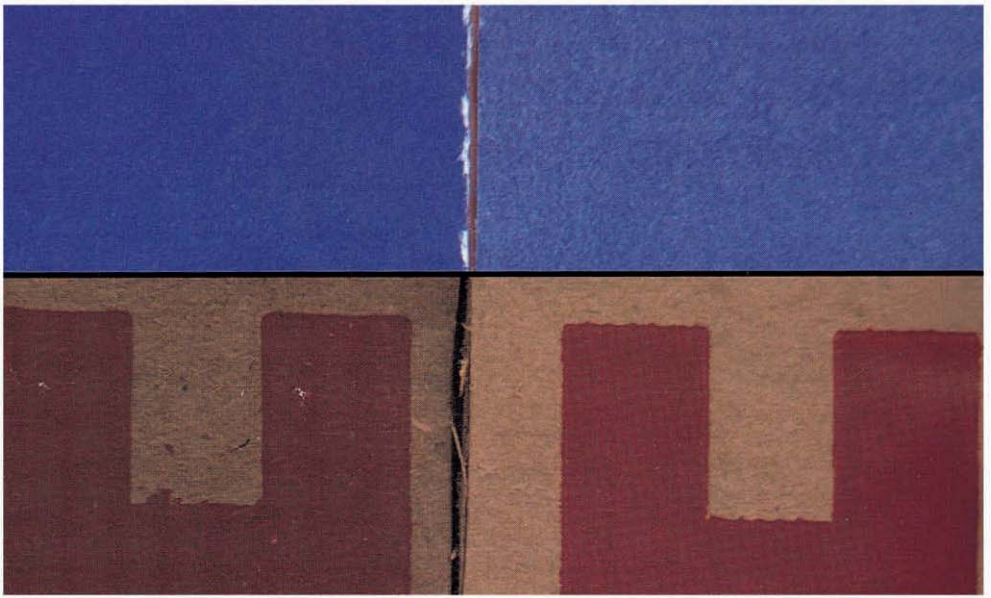

Inconsistent Print Color

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Inconsistent Print Color

PROBLEM

1. Color inconsistencies appear during press runs due to changes in ink pH/viscosity
   a. Changes in substrate
   b. Additions to ink in press
   c. Foam
2. Color inconsistencies appear between press runs due to changes in ink, substrate, run configurations, press conditions, suppliers, machine settings or speed
3. Color inconsistencies appear between different press stations:
   a. Differences in applied ink film thickness between print stations
   b. Changes in ink, press conditions, plates, ink suppliers, operator measurement or machine settings

SOLUTION

1. Optimize color consistency by monitoring and controlling ink pH and viscosity
   a. Control substrate or adjust ink for stock
   b. Monitor, measure and control all materials added to ink at press side
   c. Add defoamer properly
2. Optimize color consistency by monitoring, documenting and controlling critical variables of the printing process on each order thereby allowing reproducible print performance
3. Optimize color consistency by:
   a. Adjusting or formulating ink to correspond to various station configurations such as anilox volume, cell count and condition, metering types, pressures and conditions
   b. Measure, document and understand differences, ensure that proper materials and procedures are used to minimize the effect of changes in the process

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Ink Smearing / Tracking

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Ink Smearing - Tracking

PROBLEM	SOLUTION
1. Ink is not dry due to ink film thickness or formulation	1. Increase drying speed of the ink by: a. Reducing ink viscosity b. Reducing ink film with better metering c. Changing ink formulation for faster drying d. Decreasing machine speed e. Decreasing anilox volume
2. Ink film applications are uneven on substrate	2. Adjust ink metering, print and anilox impressions, roll parallel & check plate level
3. Ink is not drying due to high hold out of substrate	3. Change substrate, reduce ink film thickness or increase drying capacity
4. On die cut or folding operations, anvil blankets are worn or rough cutting die pressure is excessive a. Folding belts are worn or slipping b. Guides, rails or bars are hitting print c. Stacker belts are hitting print	4. Optimize converting operations by replacing or trimming grinding anvil blankets, removing die rubber, replacing knives, reducing die pressure or replacing anvil blankets a. Replace or adjust folding belts b. Adjust rails or bars to minimize impact c. Move or lift belts from print area
5. Ink formulation is incorrect	5. Consult your local Sun Chemical Representative

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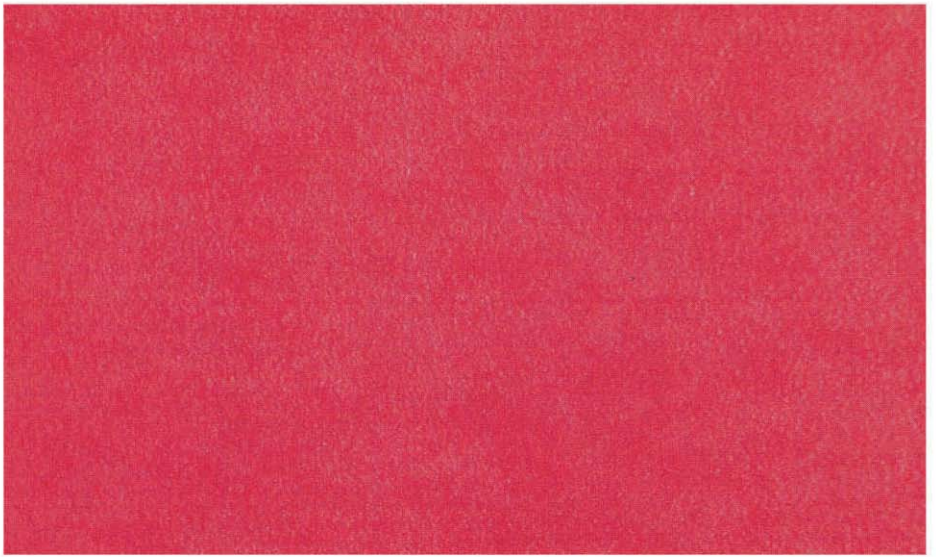

Mottled Print

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Mottled Print

PROBLEM	SOLUTION
1. Surface finish or caliper of substrate is inconsistent	1. Increase plate to substrate impression or switch to softer plates
2. Plate impression is incorrect	2. Adjust plate to substrate impression
3. Substrate surface finish or textured pattern appears on surface	3. Replace stock. Check with Sun Chemical Representative for additives
4. Ink viscosity too low	4. Raise viscosity by adding fresh ink
5. Too much water has been added to the ink causing it to be out of balance	5. Add fresh ink or replace ink in press pump
6. Anilox roller, wiper roll, or printing plate is dirty or damaged	6. Clean or replace rolls or plate
7. Ink in press is contaminated	7. Clean press station & replace ink
8. Ink pH is too low	8. Adjust ink pH to specification
9. Ink formulation is incorrect	9. Check with Sun Chemical Representative
10. Ink is foaming	10. Add defoamer. Investigate and eliminate cause of foam

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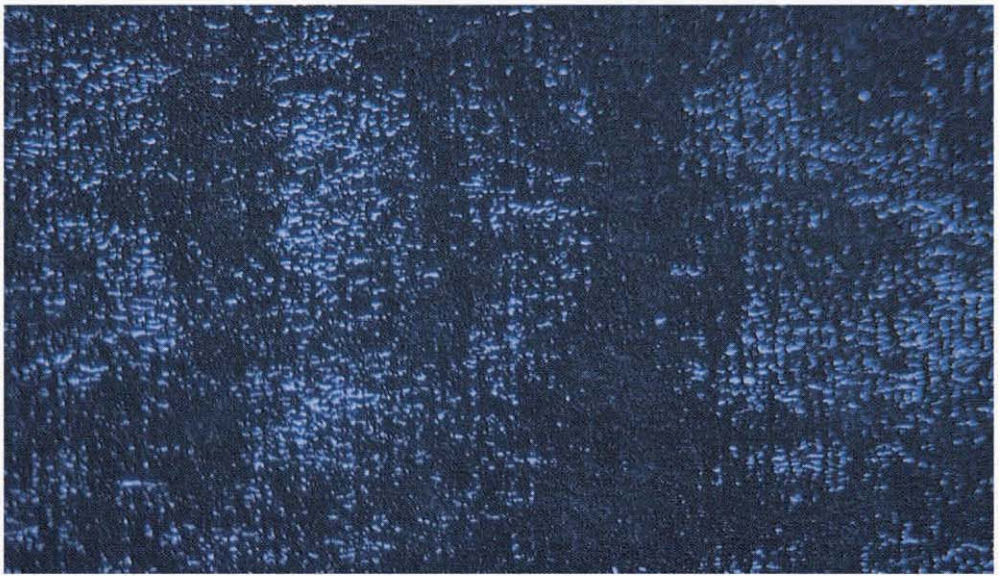

Poor Ink Coverage

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Poor Ink Coverage

PROBLEM	SOLUTION
1. Plate impression is insufficient	1. Increase plate to substrate impression
2. Ink film is too thin for substrate characteristics i.e. too rough or porous	2. Increase ink film thickness by: a. Raising ink viscosity b. Decreasing metering of anilox roll, increasing anilox roll volume or reformulating ink for substrate
3. Printing plate is too hard	3. Use plates with a softer durometer
4. Substrate surface resists ink wetting and lay	4. Consult with local Sun Chemical Representative for additives
5. Ink is drying too fast	5. Slow drying with glycol or increase machine speed
6. Ink pH is too low	6. Check and adjust pH

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Poor Trapping

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Trapping

PROBLEM	SOLUTION
1. First down ink is not dry due to improper ink or heavy ink film	1. Increase drying speed of the ink by: a. Reducing first down ink viscosity b. Reducing ink film with better metering c. Changing ink formulation for faster drying d. Decreasing machine speed e. Decreasing anilox volume
2. Second down ink is not covering due to low viscosity	2. Increase second down ink viscosity to higher than that of 1st down ink
3. Second down ink is not printing due to the ink drying too fast	3. Slow drying by adding glycol or increase press speed
4. Second down ink is not printing due to too high or too low pH	4. Adjust pH or add fresh ink
5. Ink is not drying due to the high hold out of the substrate	5. Change substrate or reduce ink film thickness
6. Second down ink is not compatible with the first down ink	6. Use a transparent ink and switch trapping sequence

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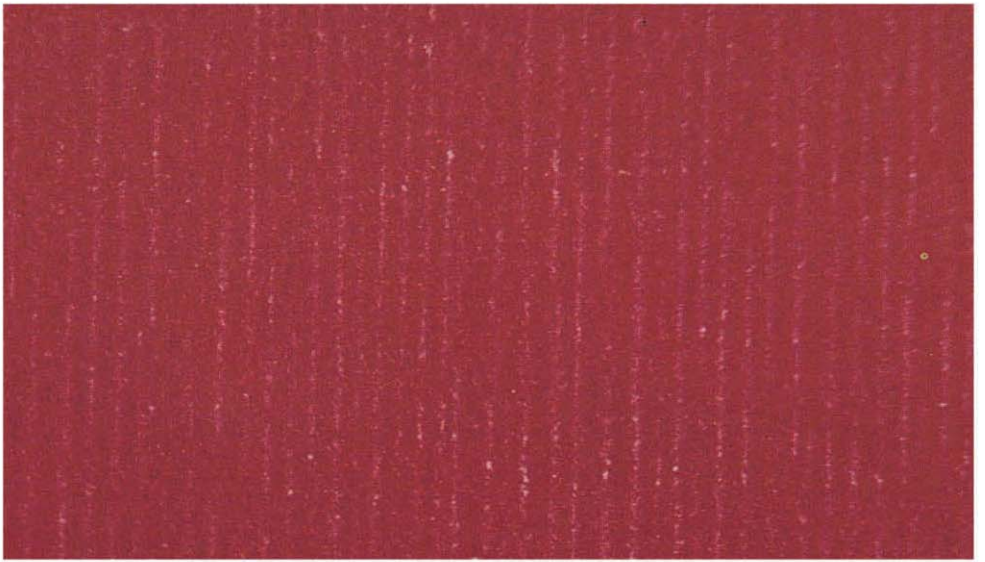

Print Striations

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Print Striations

PROBLEM	SOLUTION
1. Ink is metered with a 2 roll system	1. Reduce ink on anilox roll by: a. Increasing metering roll pressure b. Using a harder durometer crown wipe roll c. Changing to doctor blade metering d. Changing ink formulation
2. Anilox rolls are plugged worn or dirty. Rolls have wide cell lands or coarse screens	2. Replace or clean anilox rollers. Change ink viscosity or formulations
3. Printing plate is too hard	3. Use plates with a softer durometer
4. Ink viscosity is too low	4. Raise ink viscosity by adding fresh ink
5. Printing plates are glazed	5. Clean or replace plates
6. Ink formulation is incorrect	6. Consult your local Sun Chemical Representative

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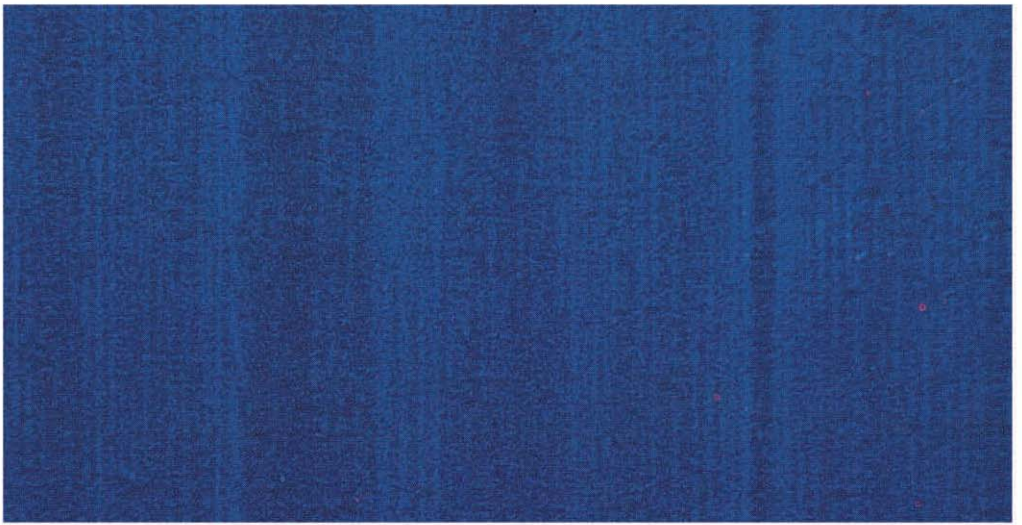

Uneven Print Color

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Uneven Print Color

PROBLEM

1. Ink metering system is out of adjustment or damaged
2. Uneven color appears across press
   a. Light to dark from roll parallel
   b. Streaks from grooved wiper roll
   c. Streaks from worn doctor blade
   d. Streaks from warped blade
   e. Streaks from damaged anilox roll
   f. Streaks from dirty anilox roll
   g. Streaks from low ink flow
3. Uneven color appears through press variations
   a. Light to dark from low ink flow
   b. Loose plate or plate mount
   c. Roll bounce from gears or bearings

SOLUTION

1. Check adjust, repair or replace press components
2. Optimize colors across press by
   a. Parallel all anilox/metering rolls/blades
   b. Replace wiper roll
   c. Replace doctor blade
   d. Reduce blade pressure or replace blade
   e. Replace anilox roll
   f. Clean anilox roll
   g. Increase ink flow through / across press
3. Optimize color through press by:
   a. Increasing ink flow
   b. Re-mount plates or mount to cylinder
   c. Check or repair press as required

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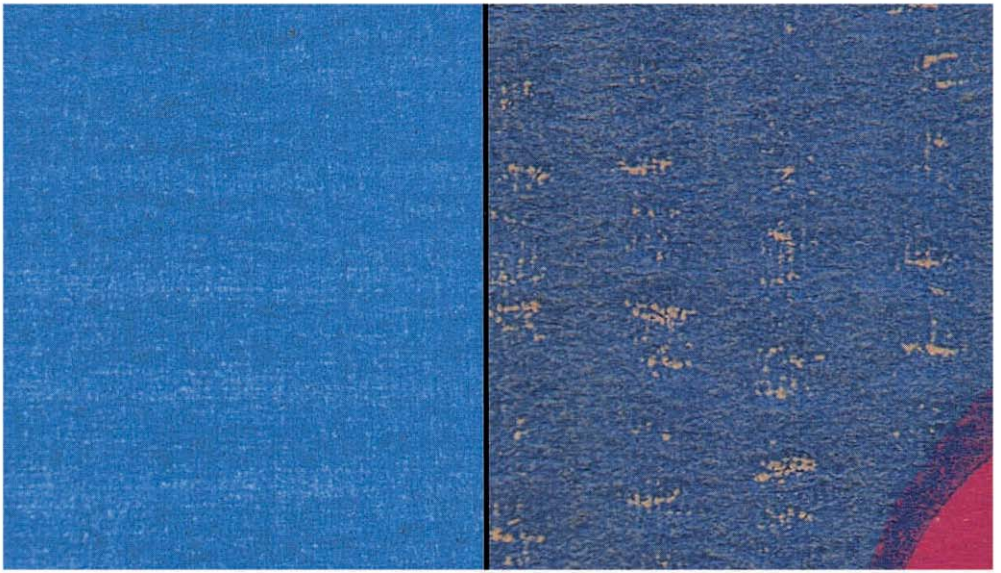

Washboard Print

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Washboard Print

PROBLEM

1. Consistent variations appear in the caliper of corrugated substrate, corresponding with the flute profile
2. Plate impression is incorrect
3. Substrate surface finish resists ink wetting and laydown
4. Ink film is too thick for high hold out substrates
5. Ink film is too thin for stock and the flute tip to flute valley caliper variation
6. Ink viscosity is too low
7. Ink formulation is incorrect

SOLUTION

1. Use a sheet that does not have washboarding / fluting
2. Adjust plate to substrate impression
3. Consult with local Sun Chemical Representative for additives
4. Reduce ink film thickness or use a more porous substrate
5. Improve corrugation process. Increase ink film thickness. Change ink formulation for more transfer
6. Raise viscosity by adding fresh ink
7. Consult with local Sun Chemical Representative

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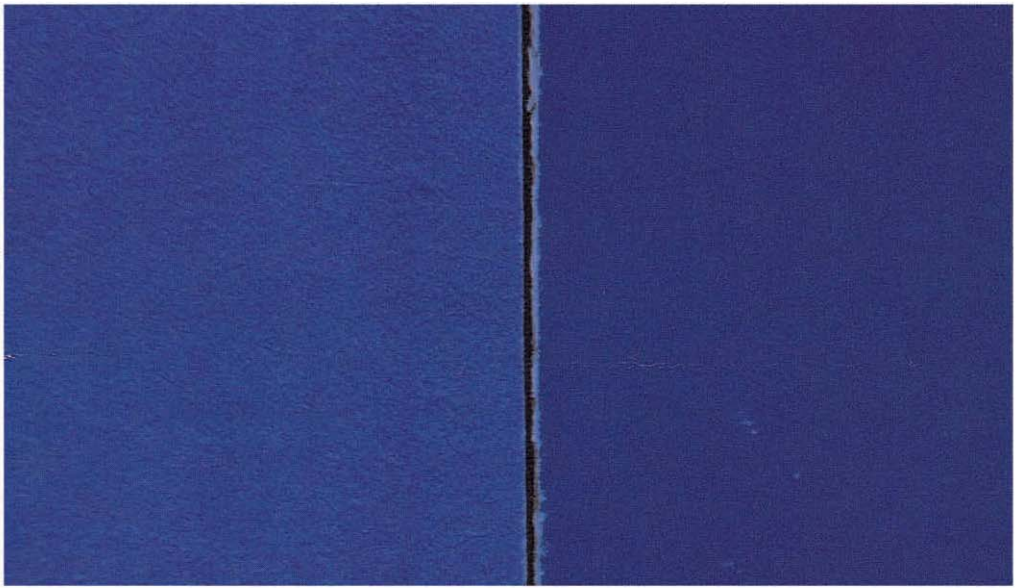

Weak Print Color

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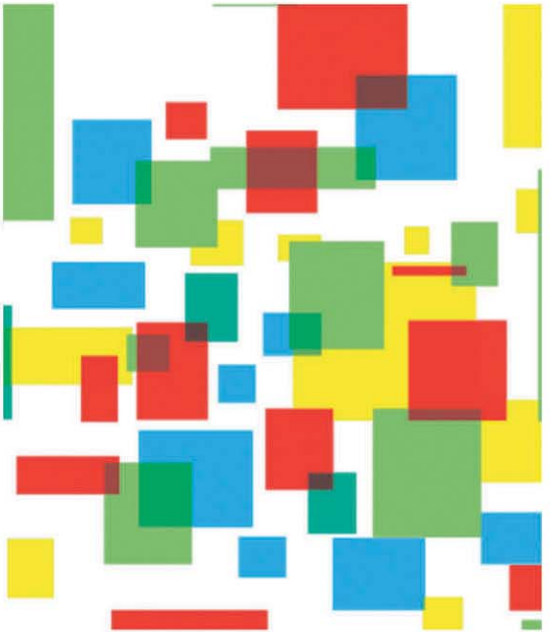
Weak Print Color

PROBLEM

1. Too much water in the ink due to water in the press station or operator error
2. Anilox roll is worn or dirty
3. Ink viscosity is too low
4. Ink film thickness is too low
5. Plate impression is incorrect
6. Ink does not contain enough color
7. Printing plate is too hard
8. Plates are glazed or dirty
9. Substrate surface resists ink
10. Ink formulation is incorrect

SOLUTION

1. Replace ink or add fresh ink. Repair station to drain wash up water. Measure amount of water added to ink
2. Clean or replace anilox roll
3. Add fresh ink to raise viscosity
4. Increase ink film thickness by:
   a. Raising ink viscosity
   b. Reducing metering of the anilox roll
   c. Increasing anilox roll volume
   d. Adjusting ink for more transfer
5. Adjust plate to substrate impress
6. Consult with Sun Chemical Representative
7. Use plates with a softer durometer
8. Clean or replace plates
9. Consult with Sun Chemical Representative



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