

Scumming

The fountain system is unable to keep the non-image areas of the printing plate clean, resulting in the presence of ink on areas not to be printed.

- Improper plate preparation

Solution: Prepare the plate properly or replace it.

- Excessive pressure on the dampening, inking or distribution rollers

Solution: Calibrate the roller pressure as per the manufacturer's recommendations.

- Excessive addition of additives

Solution: Replace the ink. Consult the ink manufacturer before adding additives.

- Oxidized plate

Solution: Prepare each plate with the appropriate products.

- The dampening roller molleton is dirty or in poor repair

Solution: Replace the dampening solution, add wetting/stabilizing agent.

Picking

Picking, lifting and delamination are similar problems that are caused by the same factors, although to varying degrees. These conditions are caused by incompatibility between ink tack and paper resistance and refer to the detachment of particles or fibers from the paper's surface by the tack of the ink when the ink film is split between the blanket and the paper.

1 - Ink with a very high tack

Solution: Lower the tack of the ink by adding anti-tack paste.

Reduce the printer speed (tack action is based on speed).

Increase the ink flow. If required, reduce the ink strength.

2 - Printing (counter) pressure is very high

Solution: Lower the printer pressure.

Use a compressible, fast-performing blanket.

3 - Very low paperboard surface strength

Solution: Substitute the paperboard.

Examine the paperboard surface and, if impurities are found on the surface, apply an on-line varnish on the first unit whenever possible.

4 - Wet picking: Picking appears after the first press unit

Solution: Reduce the fountain solution supply and increase the concentration of isopropyl alcohol.

Lower the printing pressure.

- Trapping

Trapping is the process of printing wet ink over ink that was previously printed. In other words, the degree to which an ink film is transferred over the other. Theoretically, to guarantee transfer, inks should have decreasing degrees of tack. In reality, this only applies when printing on non-absorbent substrates.

- Dry ink film does not accept wet ink due to excessive wax in the previous ink

Solution: Avoid using ink with wax.

Reduce the interval between applications.

Replace the ink with quick-set ink.

Avoid using additives to modify the ink, particularly if the proper mixing equipment is not available.

The ink manufacturer should be consulted before any changes are made to the ink.

OFFSET Drying

Under normal conditions, quick-set inks should dry within 4 to 8 hours on coated papers. On uncoated papers, the drying cycle takes between 18 and 24 hours.

Offset inks dry by the partial or combined action of various phenomena:

- Evaporation
- Selective filtering

- Oxidation-polymerization (reaction of the drying resins and oils in the ink with the oxygen in the air)

1 - Inadequate ink drying

Solution: Add a drying agent in 0.5% increments. It is important to conduct prior tests when working with unfamiliar inks.

Consult the ink supplier

Discard the ink batch if it is very old. Return it to the supplier for reprocessing, since drying agents break down over time.

2 - Excessive drying agents in the ink

Solution: Replace the ink batch.

Mix the ink with another one that contains a lower concentration of drying agents.

3 - Lack of oxygen

Solution: Make small piles.

Use anti-offset powder.

4 - High humidity in the pressroom or high moisture content in the paper

Solution: Install a dehumidifier in the pressroom (printing above the maximum risk limit of 75% is not recommended).

Remove piles of printed materials and store in a room with relative humidity between 50% and 60%.

Reduce the fountain solution as much as possible.

Increase the isopropyl alcohol concentration in the fountain solution.

Add drying accelerators to the fountain solution.

5- Ink is too receptive to water and emulsifies excessively with the fountain solution

Solution: Check the pressure of the inking and dampening rollers against the plate.

Reduce the fountain solution flow as much as possible.

Increase the alcohol concentration.

6- Paper and/or solution is too acidic.

Solution: Monitor the pH level of the fountain solution, keeping it between 5.5 and 6.

7- Excessive antioxidant agent in the ink

Solution: Add drying agent and drying varnish to the ink.

Consult the ink supplier (overnight).

Dot gain

Dot gain refers to when the printed dot is of a different size than that on the original plates or films. The edges of the dots and outlines are distorted. Dot gain can occur during the ink transfer from the rollers to the plate, or from the plate to the blanket to the paper.

The higher the level of water emulsion in the ink, the greater the ink viscosity, increasing film thickness and lowering ink tack. Both contribute to higher dot gain.

1 - Ink film is very thick (excess ink)

Solution: Reduce the ink supply.

Replace the ink with a stronger ink. (more concentrated).

Consult the ink supplier.

2 - Tack of the ink is too low

Solution: Increase ink tack by adding mordant varnish.

Avoid adding additives to inks. Adding 5% anti-tack paste promotes a dot gain of roughly 10% in half tones.

Increase printer speed (higher speed, greater picking strength).

Reduce fountain solution.

Increase the alcohol concentration.

3 - Excessive pressure between the plate-roller, plate-blanket or blanket-paper

Solution: Check and reset the pressure of the inking rollers against the plate.

Reduce the blanket and plate underpacking.

Follow the recommendations in the printer operating manual to adjust the rollers, plates and blankets.

4 - Particle accumulation on the blanket

Solution: Use suitable products to clean the blankets.

When one unit is available, use it to apply varnish with 3% of mordant. Do not use "water pressure" on offline prints, or products that will undergo further detailing steps.

Setoff

Setoff is the transfer of wet ink to the reverse side of the next sheet in the delivery pile.

This happens mainly when printing large solid areas (blocks) with high ink loads.

1 - Excessive ink when printing four color overlays on large solid blocks, particularly when printing on coated, smooth, bright and heavy papers

Solution: Make the plates using UCR, GCR, MCR, etc. techniques so that the sum of points in the overlay areas does not exceed 280%.

Reduce the ink supply.

Replace the ink with a stronger ink.

Use quick-set ink.

Increase the concentration of drying agent in the ink.

Reduce the height of the delivery pile.

2 - Ink dries very slowly

Solution: Add anti-blocking varnish.

Use infrared drying whenever possible.

3 - Static electricity between sheets

Solution: Use anti-static bars.

Humidify the pressroom.

4 - Wax content in the ink is too low to promote friction resistance and print drying

Solution: Consult the ink supplier.

Apply protective varnish.

5 - Paper is too smooth (compact) (low porosity and absorption)

Solution: Adjust ink to suit the paper or paperboard.

Use UV ink with UV curing.

Double images

Double images occur between two printing units when the ink, printed on one unit, is partially transferred from the paper onto the blanket of the following unit and reprinted off-register in relation to the original point. With quick-set inks, this phenomenon rarely happens.

1 - The tension of the blanket and/or plate is too low, causing it to slip on the cylinder

Solution: Adjust the tension of the plates and blankets using a torque wrench, in accordance with the recommendations in the equipment operating manual.

2 - Mechanical wear of the gears, cylinder sleeves, carriages or other sheet-transfer system devices

Solution: The equipment requires maintenance.

3 - Paper with curled or wavy edges

Solution: Keep paper in the package until ready to be used in the machine and between runs.

4 - The paper or paperboard is very stiff, causing premature contact with the blanket

Solution: Increase brush pressure or airflow.

Chalking

Chalking is a condition where the ink, even though it is set on the paper and appears to be dry, can easily be removed or scratched when submitted to abrasive action during normal handling or finishing operations, leaving the paper practically "blank." In other words, the ink is not anchored to the paper.

1 - The ink is not suitable for the paper in question

Solution: Replace the ink, using an ink better suited to the paper's physicochemical properties.

2 - Insufficient drying additive in the ink

Solution: Increase the concentration of drying agent in the ink.

Add drying accelerators to the fountain solution.

3 - The ink was contaminated by the addition of additives, affecting drying

Solution: Avoid adding non-drying components to the ink, or when there is no other alternative, compensate by adding drying agents.

4 - Excessive fountain solution emulsifying in the ink

Solution: Correct the water-ink balance in order to use the lowest amount of ink and fountain solution.

Static electricity

Static electricity provokes attraction between the sheets or strips of paper as well as between the paper substrate and printer components that have an opposite charge. This compromises the feeding process, since the sheets do not separate, do not advance correctly over the alignment table or become skewed in the delivery pile. It also compromises edge detection, gripping and finishing operations, affecting print quality, since it causes incorrectly registered printing and leads to offsetting.

1 - Paper or paperboard with very low moisture content

Solution: Acclimate the paper or paperboard.

2 - Paper or paperboard is exposed to a very dry environment

Solution: Monitor ambient humidity and humidify the area when below 40%.

Mottling

The printed ink film has a foggy, uneven, galvanized or hammered appearance in the areas where it should be smooth, continuous and with a satin finish due to variations in the brightness and/or density (color) of the ink film or uneven ink transfer. The marks are asymmetrical with a relatively large diameter. They are more visible in solid areas (blocks) and are seen more easily when illuminated at 20°.

1 - Uneven pressure due to variations in the blanket thickness and/or underpacking sheets

Solution: Use good quality blankets, do not use incorrectly calibrated underpacking sheets.

Increase the blanket underpacking.

Alter the machine sequence. The B, C, M and Y sequence is not always the best choice.

Reduce the water supply.

Increase the plate counter pressure for the rejected color.

Reduce the plate counter pressure since the excess pressure could cause ink picking on the sheet.