



Tech Talk From

Prisco®

Tech Talk #9

NON-IMAGE AREA PILING

Piling is the deposit of unwanted, excess ink and/or papers residue on either the plate or blanket. It is a result of the offset printing process, which places ink, paper, plate and blanket in close physical contact under high pressure.

Image area piling, appearing on the plate or blanket, interferes with the ink transfer process, causing a gradual deterioration in print quality. Non-image area piling generally accumulates on the blanket, and if permitted to build up will also reduce quality. This piling has to be removed periodically with solvent or an emulsion of water and solvent, either by hand or an automatic blanket washing system. Without resolution of piling problems, the printer is left with unplanned waste, in the form of printed material that has to be discarded.

Printers are always looking for ways to minimize piling and its negative impact on productivity and bottom line profitability. In this **Tech Talk**, we will investigate non-image area piling, analyzing its causes and sharing effective solutions based on our experience in helping printers.

Paper piling is the most common type of non-image area piling seen in the pressroom. It usually comes from linting: loose paper and particles from either the edges or surface of paper that accumulate on the blanket. As paper piling builds up, print quality deteriorates, usually seen as loss of highlight dots or gradual lightening in the solid areas.

Several variables affect paper piling. They include:

Water Supply to the Blanket - The printing plate, blanket, ink and paper all compete for a share of water from the dampening system. Adjust your water metering speed settings to ensure that every component of the system has an adequate supply, especially when printing highly absorbent paper grades.

Piling in a single-unit press or the first units of a multi-unit press often results from lint or loose paper coating articles. Raise water settings to help move those contaminants through the press. When paper piling appears in the last units of a multi-unit press, it may be due to poor or inadequate sizing in the paper. In this case, lowering water settings is the answer.

Fountain Solution - All **PRISCO fountain concentrates**, whether one-step or two-step, contain non-piling ingredients designed to minimize paper piling in all but the most extreme cases. The amount varies from concentrate to concentrate. A few, such as **H8P Plus**, have been specifically designed to combat severe paper piling. Sometimes, switching to a different formula or, in the case of a two-step, slightly increasing the amount of alcohol substitute can resolve the problem.

Additives - Our **Preparation N Plus** is a specially formulated non-piling additive that, at a dosage of one to three percent, effectively reduces or eliminates paper piling without affecting print quality. It works by lubricating the blanket surface so that paper residue, instead of building up, is carried down through the press by the sheets or web.

Field experience has also taught us that some alcohol substitutes are effective non-piling agents. Ask your Prisco representative for the appropriate formula for your press conditions. Alcohol substitutes must be used sparingly to avoid possible ink emulsification.

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Blanket Surface - Paper piling may appear on a tacky blanket surface, sometimes due to use of an overly harsh blanket wash formula. It may also indicate a need to switch to a blanket that has better solvent resistance.

Also be aware that blanket surfaces vary in a property called "release". A blanket with low release levels may lead to piling buildup. Consult with your **PRISCO** technical representative for advice on an alternate blanket construction.

Packing - Blanket or plate under-packing reduces the "squeeze", or nip pressure. This can result in "premature" piling, since there is not enough pressure to lift the paper components off the blanket so they can be carried on through the press by the sheet or web. Increasing squeeze by .025mm to .050mm usually corrects this condition.

Calcium - Due to the increased use of alkaline paper, calcium issues are common. In our **Tech Talk #1**, Calcium and its Effect on Printing, we point out that a white haze on the blanket surface that cannot easily be removed by water is probably due to calcium. Calcium carbonate does not dissolve in the fountain solution but rather slowly reacts with the acidity that is present. This releases free calcium that can then combine with other ions to form hard, insoluble compounds.

We recommend that you take advantage of additional filtration, through a mechanical filter such as the **PriscoTech® Aquafilter™ or AquaChill® II Filtration, Refrigeration and Recirculation System**. They will remove suspended particles of calcium carbonate that have been released from the paper.

A second, very effective step is a switch to a fountain concentrate that is designed to operate in the 4.6 to 5.2-pH range. The pH scale is logarithmic, and increasing the pH around 1 unit greatly reduces the amount of acid that is available to dissolve the calcium carbonate particles. They remain suspended and can be removed by filtration.

Uneven Piling - Paper piling that is greater on one side of the press may be caused by a mechanical problem: one side of the press may be warmer than the other, or the dampening system may need adjusting. Check your temperatures and roller settings. The paper may lack uniformity, in absorbency or surface integrity, across the width of the press. In this case, contact your paper supplier.

Correct Dosage - Regardless of what fountain solution you are using, be sure the concentrate dosage, is in the correct range as specified by your **PRINTERS' SERVICE** technical representative. Low dosage frequently leads to piling because the system isn't getting enough of the wetting and non-piling agents that would normally be supplied by the fountain solution concentrate.

Ink Piling - This form of non-image piling is less common, and results from the accumulation of small ink particles deposited on the blanket and plate by the fountain solution. This condition can occur if fountain concentrate dosage is incorrect, or if the fountain concentrate and ink are not compatible. You may have to alter dosage, change ink, or substitute a more compatible fountain concentrate. Also, confirm that fountain reservoir filtration is adequate-a **PriscoTech® Aquafilter™** may be necessary.

Optimize Your Performance

Our goal is to help you optimize your performance on press. Preventing or solving piling problems is just one of the ways we can help improve your operation. We hope these solutions will help you to deal with piling if it appears on your press. Please contact your **PRINTERS' SERVICE** sales representative or technical representative for more assistance. Thanks for the opportunity to share our expertise with you.

10/05

As always, your local **PRINTERS' SERVICE** office is happy to answer your questions:

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