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FOAMING IN THE PRESSROOM

Excessive foam is possible almost any time mixed fountain solution is put into a recirculating-type reservoir. When it occurs, printers often blame the fountain solution. PRISCO technical representatives are often asked by customers to diagnose and eliminate foam problems.

Our pressroom experience shows there are two types of foam: 1) **Mechanical**, due to the physical mixing and agitation of the fountain solution in the recirculator and 2) **Chemical**, due to contamination from materials other than fountain concentrates and alcohol substitutes that are part of the printing process.

It's easy to determine which kind of foam you have. Take a sample cup of mixed fountain solution that has foam on it, and let it sit undisturbed for a few minutes. If the bubbles are relatively large and the foam dissipates quickly, then it is from a mechanical source. If the bubbles are tiny and the foam persists, it is chemical in nature.

Let's review the various reasons for foam, along with the solutions that our technical representatives recommend to resolve the issues.

CHEMICAL FOAMING

Fountain Solution — Prisco fountain concentrates are designed to have minimal foam when the dosage is within the specified range as shown on the label. If the dosage is too low, the amount of defoamer may not be sufficient and foam can result. Your PRISCO technical representative can help you adjust the dosage to the correct amount.

Contamination — A variety of contaminants make their way into the fountain solution as a result of the printing process. Sources include paper (paper dust, lint, and calcium compounds), ink, plate cleaners, wash products, additives, spray powders, and even microscopic organisms.





What role do plate cleaners play in foaming problems?

Many plate cleaners, both acid and alkaline, contain surfactants that help remove ink and other residues from the plate surface. Poor cleanup technique can result in excessive amounts of plate cleaners getting into the recirculating system via the fountain pan, and then into the reservoir where the surfactant helps generate foam.

Alkaline plate cleaners contain silicates and in addition help use up the buffer system contained in the fountain solution, shortening the fountain's life. Consider modi-

fying plate cleaning techniques if this problem is an issue. Avoid squirting large quantities of plate cleaner directly onto the plate.

Cloth soaked with the cleaner usually works better. Make sure that the press is on idle while you are cleaning the plate. If you need to apply plate cleaner to a web press "on the fly", use it sparingly. We recommend Prisco Web Klene II, a product specifically designed to be used "on the fly".

(continued)

A dirty reservoir often contains contaminants that cause foaming. Remember that these contaminants may cause an increase in pH and/or conductivity. PRISCO recommends that you monitor both pH and conductivity. Good housekeeping is critical, so even if your fountain solution appears to be clean, consider draining reservoirs and refilling with fresh chemistry when 1) pH rises more than 0.5 units, or 2) conductivity goes up more than 1000 micro-mhos (above freshly mixed values).

For best print performance, reservoirs should be drained, wiped out and refilled with freshly mixed fountain solution at least once per week, or more often if necessary. Also, be sure to replace dirty filters with new when you change fountain solution. Do not reuse old, dirty filters.

Sometimes, additional filtration is necessary when contamination problems are severe. We supply a PriscoTech cartridge-type AquaFilter I or II that, when installed in the feed line to the press, helps to eliminate contamination-related problems.

Press Wash — Water-miscible washes contain surfactants to help them form an emulsion when mixed with water. As with plate cleaners, when water-miscible wash gets into the fountain pan, the surfactants can create foam. Poor manual wash-up techniques are the main cause for this contamination of the fountain solution. Make sure to lift the dampening form rollers before cleaning blankets, and the ink form rollers if you're cleaning the ink train. Wipe the rollers and cylinders with a damp cloth to remove excess wash before dropping the rollers. Just as with plate cleaners, we urge you to avoid over-use of press wash.

Automatic blanket washers use either plain or water-miscible solvent-based washes. The risk of foaming with these tends to be lower because less wash product is used in most cases. If you have problems with foam and can't identify any other cause, consider testing a non-water-miscible wash product.

Storage Temperature — Most fountain solution concentrates contain defoamers which are only very slightly soluble in the fountain concentrate. Cold temperatures during shipment or storage sometimes cause defoamers to "kick out" and float to the surface. This does not affect print quality, but the mixed fountain solution may not contain enough residual defoamer and excessive foam may be the result.

MECHANICAL FOAMING PROBLEMS

Recirculator Temperature — When alcohol use was common, printers needed to maintain colder temperatures in the recirculator to reduce alcohol evaporation. For alcohol-free printing, PRISCO recommends a fountain solution reservoir temperature of $60^{\circ} \pm 5^{\circ}$ F. This provides a fountain pan temperature of 70° to 75° F, close to that of the ink train. This avoids the "shock" effect of mixing very cold fountain solution with the warm but thin ink film on the plate image area - the ink viscosity increases as a result which can lead to image area ink piling due to lack of transfer.

Entrained Air — Small leaks (even the size of a pin-hole) in the fountain solution return lines can result in entrained air being sent to the reservoir. Examine the lines, joints and seals carefully to locate and eliminate this potential source of foam. Replace hoses if necessary.

Leakage — Many small recirculators have a canister with a foam filter through which the contaminated solution passes when it comes from the press. With these devices, it is essential that all the returning solution pass through the foam filter because any leakage at the fittings or through the end cap will cause foam. Tightening the fittings and fashioning a "gasket" from a piece of used blanket for the end cap will eliminate the foam. Submerge the canister if possible.

Venturi-Type Returns — These components utilize a partial vacuum to return fountain solution to the recirculator and can introduce air into the liquid, leading to foam. Consider modifying the return mechanism, perhaps to a gravity-type return system, to eliminate this problem.

Agitation — Sometimes the impellers in recirculator pumps aerate the solution too much and cause it to foam excessively. If this is the case, contact the recirculator's manufacturer to see if it has a different impeller available.

We have found that when reservoir temperatures fall below 55° F, excessive foam may result. Increasing reservoir temperatures to our recommended level may resolve the problem.



A MYRON L 6P
ULTRAMETER
CAN BE USED
TO MONITOR
RESERVOIR
TEMPERATURE

MAINTENANCE TIP

Foaming is best prevented by proper maintenance of the coating units. This includes frequent cleaning with a product such as Prisco Aqueous Coating Cleaner.

COATING UNIT FOAM

Although the coating tanks and pumps are a completely separate part of the press from the dampening system, foaming in the coating units can cause a cascade or overflow from the pan. Residue builds up in the coating tray, including dried "stranded" coating, paper fibers and ink, and calcium carbonate.

This residue causes restrictions in the lines delivering and returning the coating to the coating unit, and the product moves unevenly through the lines—resulting in foam. If there is overflow, it requires additional cleanup, or it can be a safety hazard, making the floor or catwalk around the press slippery.

We have found that foaming is best prevented by proper maintenance of the coating units. This includes frequent cleaning with a product such as Prisco Aqueous Coating Cleaner, which quickly and easily removes dried-on coating from the tank and press parts. Circulate it through the system in a back-flushing holding drum for waste water, to clean the vanes of the recirculation pump and all the lines.

CONTACT US FOR ASSISTANCE

We have reviewed many of the potential causes for foam in the pressroom. We hope that these simple tips can help you solve any foam problems that you've experienced. If you need more assistance, your PRISCO technical representative is available.

He will advise you on the best fountain solution concentrate for your press configuration and your applications. If you need one of our special additives or defoamers, he'll show you how to use these as well.

OPTIMIZE YOUR PERFORMANCE

Our goal is to help you optimize your performance on press. Preventing or solving foam problems is just one of the ways we can improve your printing operation. Thanks for the opportunity to share our expertise with you.

Your local Prisco office is happy to answer your questions:

ATLANTA	(800) 241-6049
MIAMI	(800) 241-6049
BOSTON	(800) 222-0146
CHICAGO	(800) 241-6049
DALLAS	(800) 241-6049
LOS ANGELES	(800) 825-4846
NEWARK	(800) 222-0146
PHILADELPHIA	(800) 222-0146
AUSTRALIA	61 2 4702 1211
BELGIUM	32 (0) 56 40 41 82
TORONTO	(888) 460-4406
UNITED KINGDOM	32 (0) 56 40 41 82



SERVICE AND TECHNOLOGY FOR THE GRAPHIC ARTS

26 Blanchard Street, Newark, NJ 07105
(973) 589-7800
www.prisco.com