US Ink® A Division of Sun Chemical Corporation

What is Scumming ?

October, 1999 Volume XXX

The Offset Lithographic process is a complicated mix of many variables that can be separated into three distinct segments. High quality printed material is the result of controlling all segments within the process. First, one must realize that the basic printing press is a **machine** that contains many variables. Of these many variables, roller condition and settings, cleanliness of the ink and water system, iron to iron settings, condition of blankets and blanket height, all can play a major role in the quality of print obtained. Second, there is a **human factor** to consider when assessing print quality. More specifically, the decision of how much ink and water to add to the process, in most cases falls, squarely on the shoulders of the pressman printing the job, and can have a tremendous impact on the quality obtained. Lastly, **chemical compatibility** of consumables also affects the ultimate print quality. How well the ink being used reacts with the plate, fountain solution and substrate (newsprint) can, to a large extent, govern the quality level obtained.

Many of the print defects that are common throughout pressrooms today, may have one or several of these variables that contribute to the problem. In our discussion of Scumming, we will investigate the cause and effect that may occur when one or several of these variables are not in proper control.

Scumming

Figure 1

Scumming can be described as the sensitization of the non-printing areas of a lithographic plate which results in the undesirable adhesion of ink to these areas. A good example of Scumming can be seen in **Figure 1.**

Scumming and "Catch up" appear visibly similar. Catch up, however, can be readily differentiated from Scumming since it is a direct consequence of insufficient dampening. Increasing the dampening solution slightly, usually clears catch up, while increased dampening levels have little effect on true Scumming. Catch up is rarely a problem since it is remedied by simply increasing the dampening solution level. Scumming however, since it does not respond to increased fountain solution, is much more of a problem. To the untrained eye, a Scumming problem may look like a problem caused solely by ink or fountain solution. In reality, several causes must be fully investigated to uncover the actual cause of the problem.

If Scumming persists after simply increasing dampening levels, one of the first variables to investigate is the printing plate. A small portion of the plate that is Scumming may be honed by a deletion pen or pencil eraser. If clean printing occurs in this area at restart, it is fair to question whether the plate has been properly developed. While running, the plate could also be cleaned with fountain concentrate or, as an extreme measure (and with caution), plate developer. If clean printing is the result of either test, then an investigation of the plate room is warranted.

REPLENISH AND CLEAN DEVELOPER BATH

First, check that the developer bath has been correctly replenished, and is not contaminated. Brushes and rollers in the plate processor should also be thoroughly cleaned and checked for wear. Also, check that the recommended roller settings are being used. Following the recommended maintenance schedule for the processor and chemicals will ensure that the quality of the plates delivered by the plate room will remain consistent. These simple checks will also minimize the number of Scumming problems caused by an improperly made plate.

MAINTAIN PROPER ROLLER SETTINGS IN PROCESSOR

A second area to investigate is the strength of the fountain solution. Weak fountain solution will not keep the plate running cleanly, at normal levels of dampening, and may be unable to keep the plate clean even at elevated levels. The proper fountain solution strength can be evaluated by simply measuring conductivity. Solution concentration is directly proportionate to conductivity. In other words, as the amount of concentrate per gallon increases, conductivity also increases. Therefore, conductivity is a good indication of fountain solution strength. Ensure that the conductivity of the solution is within the recommended range provided by the

MAINTAIN PROPER CONDUCTIVITY

manufacturer. Maintaining the proper conductivity ensures that the fountain solution mix contains the proper concentration of materials needed to keep the plate clean under normal operating conditions.

DAMPENING SYSTEM SHOULD BE CLEAN

The press dampening system is an important component in achieving proper ink and water balance. All dampening systems are designed to transfer a consistent layer of fountain solution to the printing plate. Finite control of the water film is critical in maintaining proper balance. Contamination of the dampening system can inhibit the ability to control water. Therefore, it is important to keep the system as clean as possible to promote good water control. Ink, fiber from newsprint and bacteria can contaminate the system and lead to poor control.

MAINTAIN PROPER ROLLER HARDNESS

Poorly maintained rollers in both the inking and dampening systems may also contribute to uncontrolled Scumming. Checking roller durometer should be part of a routine maintenance program. High temperature from friction within the press roller train will change the durometer of the rubber rollers over an extended period of time. As roller durometer increases and the surface becomes harder, it becomes more difficult to properly adjust ink and water. As a general rule ink forms and transfer rollers should be removed when they reach a Shore Type A Durometer reading of 40. Dampening form and water pick up rollers should be removed at 35. It is also important to maintain the proper settings of ink and water form rollers. Rollers that are improperly set will impede ink/water transfer making ink and water balance difficult to achieve.

CHECK STRIPE FOR PROPER ROLLER SETTINGS

These are several basic areas to look for if Scumming exists. If the problem still persists a more detailed evaluation will be necessary.