



Steam Showers to Precondition the Medium

A steam shower at the singlefacer has been standard equipment for many years. They have varied from manufacturer to manufacturer in the location and design, but the intent was the same. To prepare the medium to be corrugated and to retain the shape. It was necessary to properly precondition the paper. Basically, you needed to get it ready to be shaped in the corrugator rolls, and then ready to receive the adhesive in order to achieve a strong bond with a minimal amount of adhesive.

These showers can be used to increase the temperature of the paper, but that it typically the job of the preconditioner or heater located in the paper path before the corrugator rolls. This heater is either separate from the singlefacer or a component of the singlefacer. It heats the paper to target temperatures and typically opens the pores of the paper to get it ready to receive the adhesive.

The steam showers then condition the paper to make it flexible to get it ready for the flute formation process in the corrugator rolls. By making the paper more pliable, you can shape the flutes without damaging or fracturing the paper fibers. In addition to making them pliable, by applying moist steam, you make the medium similar to a "shammy" so when the adhesive is applied to the flute tip, it is pulled into the fiber to achieve a deep bond with a minimal amount of adhesive. The best way to tell if you have been successful at preconditioning properly is to peel on liner back on combined board, similar to what you would do and an X-Cut and Fiber Pull Test and then fold the combined liner and medium back on itself (slit edge to slit edge direction) and observe for fracturing of the medium. A properly preconditioned medium for 26# and below will not fracture at the flute tip in any location. 33# medium may fracture at a few locations but less than half of the flutes, and 45# medium may fracture at more than half the flutes but not all. Once preconditioned properly the flutes will not break right off the corrugator during this test, or an hour later, a day, a week or even months. They are properly preconditioned forever. As a result, when evaluating a bond, you can observe proper preconditioning and any point after the board was combined to evaluate how well it was preconditioned. In addition, preconditioning properly not only improves singleface bond, but it also has a dramatic impact on the quality of the bond to the doubleface liner.

To accomplish this successfully, it is best to have flexibility in the type of steam and quantity of steam you choose to apply to a specific medium. Paper from some mills seems to run and bond best with dry steam, while others are definitely better with moist steam. Moist seems to provide benefits in most situations, especially with heavier mediums. Many plants will source their paper from multiple mill locations and suppliers. Knowing which mills run best with each type of steam can be very helpful in your efforts for creating the best bond and the highest possible speed.

Setting your equipment up to have the ability to apply both moist and dry steam in varying degrees on-demand as needed for each of the paper types you may run can result in significant benefits in your operation and waste. If you don't already have this capability or would like to discuss this topic in more depth, please contact us for more information.

Your Corrugated Chemicals Technical Specialist can help coach in this area.
You can contact them at 800-669-7589 or email: solutions@corrugatedchemicals.com for assistance.



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