

Small Grains that Have a Big Effect



ANTI-SETOFF POWDERS // Anti setoff powders are used to create a gap between freshly printed sheets in order to ensure there is no ink transfer and to help the sheets dry a little faster. In addition, the powder improves the slide characteristics of the printing stock in the delivery and in postpress. But which tiny microscopic grains of powder are best suited to which applications?

Anti-setoff powders are used to create a gap between freshly printed sheets in order to ensure there is no ink transfer and to help the sheets dry a little faster. In addition, the powder improves the slide characteristics of the printing stock in the delivery and in postpress. But which tiny microscopic grains of powder are best suited to which applications?

In principle, there are three different types of powder. Some powders are made of calcium carbonate, some are sugar-based, and others are made of natural starch. One thing applies no matter the material – the more uniform the grain size, the better the powder. Calcium carbonate powder has a comparatively high weight, is relatively low-dust, and is not sensitive to static buildup during the powdering process. However, it is best to use a surface-treated version of this powder, as the shape and hardness of untreated calcium carbonate means it can act like emery paper on the print sheet, printing plate, and machine components.

It also tends to build up on the blankets during perfecting printing. In contrast, as sugar-based powder is dissolved by the dampening solution, it barely builds up on the blanket and is suitable for several passes. The disadvantage of sugar-based powder is that it reacts strongly to heat, meaning it cannot be used with dryers. In addition, it is not compatible with water-based coatings. Starch powder has the most naturally spherical grains. This means it flows well and is particularly gentle on the machines. For perfect results, use a powder application system with static electricity eliminator. The starch powder is also available in a water-repellent version designed specifically for water-based coatings, but this cannot be used for multiple passes. It is also important to note that hydrophobic starch powder is not compatible with subsequent finishing operations such as coating, lamination, and hot-foil embossing!

The key thing to bear in mind is that the powder has to be the perfect match for the print job at hand. The same is also true of the grain size of the powder – this is largely dependent on the print motif and respective area coverages. As a rough guide, 20 to 25 micrometers is generally sufficient for print jobs with grammages of between 70 and 250 gsm. Grain sizes of 35 micrometers and over are becoming increasingly common for jobs with higher grammages or printing stocks with rough surfaces.

Once the right powder has been selected, the next task is to ensure only as much powder as is absolutely necessary is applied to the paper – no more. The powder spray devices that do this have a tricky task to fulfill. As the sheet speeds through the delivery, it is surrounded by a cushion of air, or the laminar flow. The powder jet has to more or less punch its way through this air cushion while remaining as consistent and uniform as possible.

The functionality of the powder spray device can be tested by placing a black sheet under it and activating the test mode. If the sheet displays irregular powder distribution following the test job, the powder nozzles and supply lines should be checked for blockages. However, the problem may also lie in overly strong air flows (and therefore eddying) in the delivery. Any evidence of smudging or ink transfer is probably due to insufficient powder application. If all nozzles and supply lines are free from obstruction and all settings (e.g. powder quantity, paper format) are correct, it may be that the printing stock has become electrostatically charged and is repelling the powder. This can be resolved with a relative pressroom humidity of 50 to 58 percent.

If, following work-and-turn and the second pass, the print image reveals streaks in the direction of travel, marks left on the print motif by the lifting suckers, or a degree of cloudiness in

the screens, it's possible too much powder has been applied. In this instance, it may be that the selected grain size is too small. Clusters or comet-shaped blobs of powder are a clear sign that the delivery and delivery air system need to be cleaned. Starch and calcium carbonate powder can be removed by briefly running empty printing units in “print” mode without dampening. For sugar-based powder, the dampening function must be activated.

Spots or scratches in the print image may suggest the grains are too big or have “sharp” edges. If the delivery piles are not flat all over, check the synchronization of the powder spray device. If available, the Prinect Press Center can be used to easily adjust the powder application time and powder length settings.

The use of a certified powder is advisable to ensure high-quality, efficient print production even at high speeds. Heidelberg recommends the starch-based powders Saphira Powder Pro 100-20 and Powder Pro 100-35. Both powders have a particularly uniform grain size. They are also ideal for use in the highly efficient PowderStar devices from Heidelberg. The combination of Saphira powders and PowderStar reduces the quantity of powder required, leads to less contamination in the delivery, creates a better ambient climate, and causes less wear on presses and peripherals. ■

Info

The products described may not be available in all markets. Further information is available from your local Heidelberg representative.