

What is calcium carbonate ?

In the form of precipitated calcium carbonate or ground calcium carbonate, it is used as a filler in papers.

The paper you print on is changing. Twenty years ago, almost all of the mills in North America produced paper using an acid process. By 1992, 20-30% of these mills were producing alkaline paper. In Europe, this figure is 50-60%. Alkaline paper making in North America is expected to grow during the next five years until 90% of these mills will be producing alkaline paper.

The move from acid paper toward alkaline paper is not an arbitrary one. Alkaline paper offers several advantages over acid paper :

- It is less polluting to our environment overall
- It lasts longer
- It has improved sheet strength
- It uses less trees per ton of paper
- It has a higher brightness level

For all the benefits, alkaline paper now creates a whole new set of printing parameters that printers must now face and learn to troubleshoot in order to produce quality results. These include :

- Tinting on printed sheets
- Toning on the plate
- Blanket piling which produces a framing effect
- Build-up on non-image area of the plate weakening receptivity of water (scumming)
- Roller glazing
- Contamination of fountain solution
- Calcium carbonate leaches out of the paper and is deposited on the blanket. On the blanket it causes piling and picture framing.

From the blanket, calcium carbonate is transferred to the plate and now causes hickeys, toning and the non-image area of the plate is less water receptive, which in turn, causes scumming. The ink and water form rollers pick up the calcium carbonate from the plate which causes rollers to glaze and harden.

As the run lengthens, calcium carbonate will find its way into the dampening system and contaminate the water, which will increase pH and conductivity.

Some calcium carbonate may leach out of the paper during the printing process. When this happens, the calcium carbonate pigments, which have sizing particles attached to them, migrate to the upper form roller. Once there, they are milled into the ink and dispersed throughout the dampening system and the ink train.

The discovery of special alkaline-compatible sizing systems made the production of alkaline paper a reality. But once again, this key ingredient in alkaline paper causes some problems in the print process. As mentioned previously, when these calcium carbonate particles leach out of the paper, they have sizing

(continued on the next page)



What is calcium carbonate? (continued)

bonded to them. Eventually, these calcium carbonate/sizing particles come into contact with the ink. These sizing compounds sometimes activate the ink driers prematurely, resulting in both ink feedback on metal-surfaced dampening rollers and a calcium glaze build-up on the blanket.

Conventional blanket and roller washes will not remove the build-up that results from the leaching of calcium carbonate/sizing particles. You must use water-miscible wash to remove this type of glaze. Leaving this glaze untreated is not an option - you will experience a noticeable decrease in print quality.

Solution

Unigraph fountain solution products are designed to break the calcium carbonate/sizing bonds and keep them "tied up" (sequestered is the technical term) until they are removed during roller wash-up.