

Where Does CALCIUM CARBONATE (CaCo3) in Offset Lithography Come From?

European/Scandinavian Paper Mills began moving from acid to alkaline manufacturing in the 1960's. The reason was to reduce costs by increasing the mineral content of their wood-free papers and boards. In Europe and Scandinavia there were abundant deposits of chalk, limestone, and marble (all calcium carbonate).

pH Scale: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
ACID NEUTRAL ALKALINE

Calcium carbonate is soluble in acid. Acid papermaking was discontinued and alkaline papermaking was adopted so calcium carbonate could be utilized as the filler.

There are two basic types of calcium carbonate utilized in paper/board manufacturing;

- Ultra-fine ground is prismatic like a diamond and is a good coating additive to reflect light.
- Precipitated Calcium Carbonate is popcorn /cauliflower shaped and less abrasive. PCC is good for filler use in uncoated papers or the base sheet prior to coating.

In the mid 1980's, North American paper mills desired to go alkaline for environmental reasons (discontinue use of elemental chlorine bleach) as well use both precipitated and UFG calcium carbonate.

In 1989 Amerikal Products was incorporated after its founders realized that lithographic fountain solutions in Europe and Scandinavia were stuck at a pH of 5 and had to use 10 % 30% alcohol. In North America, the acids utilized in all fountain solutions when coupled with the alcohol substitute chemistry, wetting agents, and gum systems interacted with alkaline paper sizing (both internal and surface) chemistry and ultimately and quickly coupled with both Precipitated and UFG Calcium Carbonate to form insoluble calcium salts which lock onto press rollers, blankets, and the plate grain.

Amerikal was the first manufacturer of Lithographic Fountain Solution to solve the multitude of compatibility issues with PCC and UFG filler use and remains the leader in this technology coupled with health and environmental issues on a global basis.