

De-inking Chemicals

Volume I, Issue I

OTHERS :

Felt and Wire
Conditioning

Biocide

Deposit Control
Chemical

Defoamer

Formation Aids

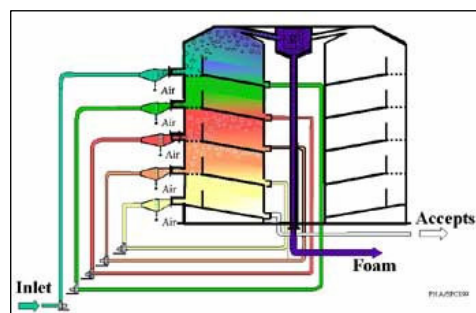
WWT Polymers

Deinking is a process used in the recycling of waste paper where most of the printing ink and other impurities are removed to allow it to be re-used in the production of new paper. Recycling of waste papers like Newsprint, Office waste, Copying and OMG papers demand a certain degree of Brightness and Dirt count in order to be marketable at a higher price.

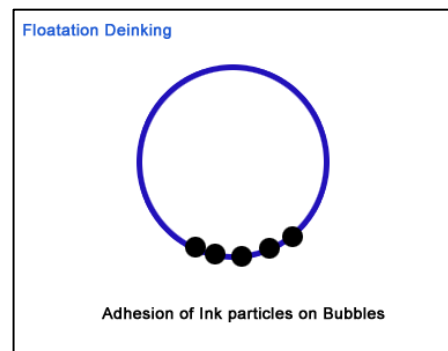
This brightening process involves removal of the ink particles, pigments and dye by either Washing or Floation. Washing process is akin to laundering of soiled clothing whereby large quantity of water is added to create a solution or emulsion of ink and dyes to be separated from the "clean" fibre. Dispersed ink should not be re-deposited back onto the cellulosic fiber. This process requires the help of a powerful detergent, usually a non-ionic surfactant, to first dislodge the ink particles from the cellulosic fibre followed by washing the ink/detergent colloidal solution from the fibre. Deckers and Side-hill screens are essential equipment needed to perform wash De-inking. Huge quantity of water is necessary to carry out the washing process; thus for countries where water is scarce, this Deinking method is usually not practical.

"Washing" process can achieve a certain degree of brightness but has lower dirt count. Its limitation is that it can only remove particulates that either be soluble or form emulsion with detergent. It is ineffective when the particulate is insoluble and hydrophobic, like carbonaceous black ink

of newsprint, or having large size. As most emulsion or solution are having particulates of <15 microns, anything beyond that size will form sediments when suspended in water. On the other hand, Floation deinking can improve cleanliness of the recycled pulp more effectively. In this process, an Ink-collector is required first to pickup the unwanted hydrophobic ink particle from the dispersions. The DI chemical is capable of collecting large size (<100 microns) ink particulates,



and form air/water inter-face with bubbles. The bubbles is removed by surface skimming. As carbonaceous ink can only attach itself to the Carbon atoms of the straight-chain carbon molecule, Fatty acids or soaps of C-16 to C-20 with sufficient HLB are most suitable ink collector for floation de-



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inking.
The latest R&D trend in deinking is focused on enzymes. Recent progress shows that cellulase and xylanase blends are strong biological booster for floatation Deinking. It works on the principle of speedier

Ink/fibre separation by lowering the Van der Waal bonding between the 2 components. A chemical ink-collector is still prerequisite to de-inking; without which the air/water interface will not have any ink-particles for eventual removal.

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