KURITA DROPWISE CONDENSATION TECHNOLOGY

ABSTRACT

The drying process in paper industry is the process that allow the removal of the water for giving the final properties to the product. At the same time, it is one of the most intensive energy consumers in the paper production process.

Therefore, the efficiency of the drying section makes a big influence in the overall economical figures, as well as in the product quality. It is critical to keep efficient heat transfer conditions in each of the cylinders. This heat transfer is determinated by the condensate removal, and the surface properties in terms of corrosion and scaling.

Thanks to many years of experience and knowledge in film-forming amines technologies, Kurita has developed Kurita Dropwise Technology which improves productivity and boosts heat transfer efficiency in paper dryers bythe creation of a hydrophobic layer that not only protects the system from corrosion and scaling, but also avoids the formation of a condensate film in the inner surface of the rotating cylinder thanks to the dropwise condensation effect that makes the water droplets to flow down from the surface as soon as they condense.

The removing of the condensate layer increases the heat flow up to a 30% improving the efficiency of the whole system.

Kurita Dropwise sustainable technology leads to a reduction of carbon dioxide emission supporting the development of an eco-friendly society. That is one of the reasons why it has been awarded by the Agency of Natural Resources and Energy in the Product and Business Model category of the 2019 Energy Conservation Grand Prize organized by The Energy Conservation Center, Japan.

Keywords: : Efficiency, condensation, heat transfer, hydrophobic