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Application to improve productivity and reduce CO₂ emissions in dryer process -Kurita Dropwise Technology-

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Kurita Water Industries Ltd,

Kurita Dropwise Condensation Technology has been applied with over 150 paper machines in the world. Based on the achievements so far, the improvement of steam consumption by 3~10 % and other new values were also revealed, such as the improvement of the paper machine speed, the decrease of electric power, the cut of maintenance operation, the decrease of loss products, the time saving of pre-heating and so on.

In recent years, this technology has been applied not only with paper machines, such as a black liquor evaporator, condenser of power boilers, pulp sheet machines, and corrugators in cardboard factories.

Kurita believes that we can contribute to creating new value for society and companies, by introducing this technology and maximizing heat transfer efficiencies of more factories.

Next Generation Technology for Continuous Pulper Detrash "S-PAL SYSTEM"

Yoichiro Iwatani
AIKAWA Iron Works Co., Ltd.

There have recently been substantial changes on the domestic recycle paper supplies in Japan, following the import restrictions of the used materials in world. It is expected to continue the tendency of such difficult procurement of the good quality recycle papers, which would lead to increase the use of un-sorted recycle papers.

To adapt these changes, we need to recommend the upgrade of the stock preparation processes for proper handling. On this paper we would like to introduce the latest technology of the recycle paper pulping system (continuous detrash system) based on an actual case study.

Operating Experience with Chelating Agents in Kraft pulp process at Ishinomaki mill 1KP plant

Hiroshi Kimura, Takuya Yamauchi, Kazuhiko Makabe and Masahiro Shimizu
Ishinomaki Mill, Nippon Paper Industries Co., Ltd.

In the 1KP process at Nippon Paper Industries' Ishinomaki Mill which produce NBKP the usage of the domestic softwood species, which contain higher calcium(Ca) constituents than the conventional softwood, has increased in recent year. According to the increase usage of the domestic softwood, the adhesion and accumulation of the stains including the Ca scale for the digester and the other 1KP process has been actualized with the in recent years. As a result, it has become difficult to maintain continuous operation (for six months) or led to decline in digestion efficiency, such as deterioration in steam consumption per unit.

Previously, the digester of 1KP process have been cleaned with sulfamic acid at each shutdown (SD) to remove the stains including Ca scale. However, Cleaning with sulfamic acid had some issues and risks, which is the corrosion of the base material of the digester, highly workload with manual sulfamic acid dissolution etc.

To solve these issues and risks, we applied the chelating agents to the digester cleaning as an alternative to the conventional sulfamic acid cleaning. In this paper, the operational experience of the chelating agents cleaning for the digester is reported.

We tried the digester cleaning test with the chelating agents in the SD period, based on our past operational experience and the suggestion from Kurita Water Industries Ltd. As a result, Ca elution in the cleaning liquid from the digester was equivalent to that of the conventional sulfamic acid cleaning. Also, from the visual inspection of the top separator basket, the drastic removal of the stains including Ca scale was confirmed. Furthermore, there was little adhesion and accumulation of the stains including Ca scale to the A6 heater tube and the inline drainer basket. And the conventional high-pressure jet cleaning could be avoided.

The above results indicated that the application of the chelating agents to the digester cleaning is significantly effective, compared with the conventional sulfamic acid cleaning.

The chelating agents are expected to play a role on maintaining the stable operations, reducing the workloads, and ensuring the safety, and also contribute to the cost reductions and the improved profitability.

Energy Demand and Carbon Footprint of Bleaching Chemicals

Alexis Metais , Tao Su, Saori Sakamoto and Kyomitsu Hikida
Xylem Inc.

Energy prices strongly increased in 2022 and remain unstable. It leads to additional challenges in meeting all at once competitive pulp bleaching costs and global targets on reduction of GHG emissions. The present paper intends reviewing energy demand for production of the main chemicals involved in bleaching of chemical pulp such as oxygen, ozone, chlorine dioxide and hydrogen peroxide as well the chemical precursors needed. Once done in a first part, carbon footprint will be assessed considering the influence of different national grids to help pulp producers and the local regulation authorities.

Evolution of on-demand printing machines and media development

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Printing, which was developed by Gutenberg in Germany in 1450, has developed as a means of transmitting information using paper as a medium, but with the spread of the Internet, the shift from printed media to display has accelerated, and the decline in commercial printing such as catalogs and posters is accelerating. On the other hand, with the advent of computers, from around 1990, many on-demand printing presses (electrophotographic method, inkjet method, etc.) appeared, which obtained "output quality close to offset printing" and met the demand for "small lot, variety of products, short delivery time" in commercial printing. In the 2000s, against the backdrop of dramatic improvement in elemental technologies for digitization and colorization, the fields of use expanded to commercial printing and photographic printing, and it is expected that they will continue to penetrate the market.

This paper reports on the technological innovation of on-demand printers and media used for them, divided into electrophotographic paper and inkjet paper. Based on existing reports and the investigations that the author has been involved, how the media responded to market performance requirements (high image quality, high functionality, low cost, etc.) were summarized.