

Approach the Issues on Coating Color Recycle and Effluent

Katsuhiko Hidaka

Pulp & Paper Industries Department, Kurita Water Industries Ltd.

Disposal of coating color liquid in a paper mill causes in adverse effect on operation cost and environment. To avoid that, recycle of excessive coating liquid is important. The best way of the recycle is to preserve excessive coating liquid in a tank by preventing the corruption with preservatives before use it. Required long durability under the alkaline condition of coating liquid, we developed a new preservative “Kurikiller® SI-930 series “ as a suitable coating liquid preservative. Another method is to utilize discharged coating liquid to paper making process as dilution water for coating broke. It brings the matters of white pitch and anion trash problems that cause in lowering productivity and paper quality. To minimize the influence, we utilize S. sensing® system by monitoring water quality and control feeding coagulant to fix these matters on pulp stable. Final excessive coating liquid must be treated as waste water. We propose pre-treatment system before general waster water treatment to cut down the load, and also utilize S. sensing® system to stabilize the waste water quality by control flocculants.

Technology and History of Coating and Air Dryer

Ichiro Honma

Paper Technology, Valmet K.K.

In this paper, three main topics are described as technology and history of coating and air dryer. The first is the technical development of size press. Pond size, roll metering, application head size press and spray sizer are described. The technical development of some important coater heads are described secondly. Roll application, short dwell application, jet application blade coater and curtain coater are explained. The third is an update of an air nozzle of air dryer. This greatly

contributes to improvement of drying capacity and energy saving. The screen and the deaerator which are the important device of sizing and coating supply system are introduced at the end.

6 M/C Operating Experience of OptiSizer-Combi

Hiroataka Hirai

Oji F-tex Ebetsu Mill

We invested in OptiSizer-Combi with Turn Dry Compact to PM6 at Ebetsu Mill Oji F-Tex Co., Ltd. in April 2013 to have flexible coating operation range. OptiSizer-Combi has a feature of swing machine for pond-sizing and rod metering sizing, and two alternative types of applicator chamber, baffle plate or sealing blade can be selected. The feature of Turn Dry Compact is such excellent performance of non-contact drying system with Air turn that can keep better web runnability. In this paper, we introduce the outline of OptiSizer-Combi and Turn Dry Compact, and describe solutions to problems which we have had during operation such as coating variation due to coating color properties, coating color accumulation onto TDC, coating color overflow over the rod due to excessive applicator chamber pressure.

Operating Experience of No.7 Paper Machine

Kazuki Takahashi

No.6 Production Department Niigata Mill,Hokuetsu kishu Paper Co.,Ltd.

The Niigata Factory PM7 started operation in 1990, and in the Niigata plant it was introduced as the second on-coater machine. Production variety A2 grade, A3 grade are produced, various kinds of colors are used, and the coating amount adjustment by the coater is widely. various types of adjustment are also carried out in the blade type and setting. In this report, we introduce the outline.

Technology and Development of High Performance Coating blade

Takuya Maekawa

Spectris Japan Co., Ltd.

It has been almost 30 years since BTG innovated and developed the first High-performance coating blade in the world. High-performance coating blade can improve paper quality, decrease web breaks, blade changes and eliminate running-in time

BTG Duroblade overcome the performance degradations caused by rapid wear-and-tear on steel components, delivering clear performance improvements and better quality coated paper and board products. Our blade tips are treated with the materials of ceramics, ceramic-metal compounds to enhance coated paper surface, smoothness, gloss and fiber coverage. This in turn leads to significant, sustainable gains in business performance.

In this paper, I describe a history of HP-blade development in BTG. Also explain how coating blades make influence on coated paper surface quality at a technical stand point.

Stabilization of Coating and Improvement of Roll maintenance by Rubber cover

Shigetada Kadomatsu

MEIJI RUBBER & CHEMICAL CO.,LTD.

We, Meiji Rubber & Chemical Co.,Ltd. established in 1900, have been supplying rubber covering materials for Pulp & Paper industry for 115 years. We are dealing a variety of materials and developing the optimum cover rubbers for each section of paper machines based on the years of experience.

In recent years, due to the diversification of coating & sizing liquid and high speed machine operation, the requirement of quality stabilization for Applicator rolls cover is becoming harder.

Our material “ Super Polyforte “ is a polyurethane material containing the special polymer, have been adopted in many Applicator rolls and Smoothing press rolls, etc. since starting sales in 1999.

Now we would like to introduce references of “Super Polyforte“, particularly focusing on Applicator rolls in the several paper mills which have achieved

stabilization of coating and longer replacement cycle of rolls. In this report, we introduce about the superiority as the roll cover material and customer result.

Updating of air dryer blow nozzle at #32 Coating machine

Takeshi Hirose

Hokkaido Mill – Shiraoui, Nippon Paper Industries Co., Ltd.

Shiraoui #32 Coating machine has four head off machine blade coaters mainly producing approximately 600 ton/day of A2 coated paper. Each coating head has dryers such as gas IR dryer, air dryer and cylinder dryer.

Air dryer blow nozzle was updated to improve drying efficiency in May 2015. This new type of nozzle had higher drying efficiency that made it possible to shut down gas IR dryer. In this paper, feature of this new nozzle, installing process and run-ability were reported.

Introduction of Headbox and our Experience of Rebuilding

Koji Seki

Paper Machinery Sales Dept., Kobayashi Engineering Works, Ltd.

Since the establishment in 1947, Kobayashi Engineering Works has manufactured several units of Board Machines starting from Head Boxes. In 1980, we have signed a technical cooperation with Ahlstrom in Finland and learned their technology for Air Cushion and Hydraulic Type Head Boxes to enhance our knowledge and ability to compete in the markets. Recently, more and more paper producers are challenging on thinning of board papers with faster production speed than ever. In order for us to meet these expanding requests from customers, we have signed another technical cooperation with Paperchine, USA recently and released PCR Stable Flow Head Box.

Starting from Japan, we have several clients worldwide in various regions of North America, South America, and in Asia. Since 1980`s we have delivered about 300 units of Head Boxes and that number included 100 units of Hydraulic Types. These Head Boxes are manufactured aiming on producing various sheet grades such as Liner Board, Corrugating Medium, White Paperboard and Special Papers.

On this article I would like to focus on these variety of Head Boxes. I would like to explain about the variations we could offer and talk about the rebuilds we have conducted recently.

Why Asian Pulp Producers Are Investing in Ozone Bleaching

Brendan van Wyk

Xylem Water Solutions South Africa(Pty)Ltd.

There are now more than 23 pulp mills globally that are producing almost 10 million tons per year of ozone bleached pulp. The pulp is made up of both hardwood and softwood, and final products range from fluffed pulp to dissolving pulp, to printing and writing grades. New mega-mills under construction have now chosen ozone as a bleach chemical, while mills that have been using ozone for a few years are installing extra ozone capacity so that they can convert their total production to Z-ECF or TCF bleaching.

Ozone use in conjunction with chlorine dioxide, the so called ECF light or Z-ECF sequences have proven to be the most economical while still improving pulp quality and reducing the impact of the bleach plant on the environment. The high bleaching efficiency of ozone allows a drastic reduction in the consumption of expensive bleaching chemicals - chlorine dioxide in ECF bleaching and hydrogen peroxide in TCF bleaching, and sodium hydroxide in both cases. The implementation of ozone bleaching also results in the reduction of steam requirements during the bleaching process.

The History of Technological Developments of the Paper Industry in Japan after World War II

Part5 Recovered Paper for Newsprint and Printing paper (1)

DIP for Newsprint

Kiyoaki Iida

As Historically, 30-40 % of paper and paperboard produced in Japan was recycled mainly for paperboard production. Around 1970, pollution in environment became troublesome and the environmental conservation was socially concerned. Then, following the increase of oil price by OPEC, the price of imported wood chips hiked, and alternative resources for paper making were looked for. Just in time, floatation deinking of recovered newsprint was developed in Europe and paper manufacturers in Japan blended the DIP into their newsprint furnish, replacing CGP. Around the

same time, RGP and then TMP started to be produced from imported softwood chips, replacing GP. As a result, newsprint experienced quite a big change in its pulp furnish.

News printers were also revolutionizing their technology including printing system those days and demanded improving paper quality one after another. In order to satisfy their requests, paper companies upgraded their equipment, refined their knowhow and at the same time improved productivity to cope with imported newsprint. The conversion of newsprint furnish mentioned was accomplished interrelatedly in the technologically and socially changing situation.

In 1980, the recovery rate in Japan was 46.2 %, and the recycling rate for paper and paper board production was 41.5%.

The recycling rate stagnated for a while, and then increased in around 2000. It will be reviewed in the next issue.

Accelerate Ageing Test of Naturally Aged Paper

—Degradation Behavior of Paper by Sealed Tube Method at 80°C—

Kang Lee and Masamitsu Inaba

Graduate School of Fine Arts, Tokyo University of the Arts

Research was conducted to clarify the relationship between natural ageing and accelerated ageing of paper using paper naturally aged for 80 to 130 years. Following a previous report on a test regarding the degradation behavior of paper samples using suspension method (80°C, 65%rh), same paper samples were artificially aged by sealed tube method (80°C) to clarify the physical and chemical ageing behavior of paper.

As a result of the present experiment, it was found that it is desirable to use degradation rate indicators (dividing degradation rate by current physical value prior to accelerated ageing) in sealed tube method as well for the ageing index of the physical strength of JCS samples instead of the degradation rate. Based on this result, it was further found that the degradation of the physical strength and discolouration of paper in sealed tube method was more severe than those in suspension method but that changes among paper samples indicated similar tendency in both methods. Moreover, as in suspension method, the more organic acids had accumulated in the paper, the larger the degradation rate indicators of tear and burst indices and discolouration rate were in sealed tube method. These

degradation rate indicators were correlated to the number of cellulose chain breaks. From these results, it may be said that broken cellulose chains have much to do with the decrease in the physical strength of paper and that cellulose chain breaks are caused independent of the kind of acid, oxidation contributing as much to the break as hydrolysis.