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DeBottleneck Project of the Duplex Board Machine

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The UP-GRADE Project for duplex board machine, Kobayashi Engineering Works, Ltd. received an order from SKIC (Siam Kraft Industry Co., Ltd. in Thailand) in 2012 was started. Former name of TUPI is a subsidiary company of SCG (Siam Cement Group) who is the biggest enterprise in Thailand. TUPI changed their name to SKIC in the anniversary of 100 years of the foundation in December 2013.

In 2005, we received an order from former TUPI of relocation project of a machine which was No.7 machine belonged to Oji Paper Co. Fuji mill in that time and the operation of this PM9 was started in 2007. This machine is High Speed Ultra Former consists of 7 layers and exclusively producing coated duplex board. The Contract of this project included the installation work, commissioning work and performance guarantee and we could fully and smoothly made our performance conforming to SKIC's needs.

According to this good achievement, we received another order of renovation work for production increase and quality improvement in 2009 and the modification work was made in November and December 2013 including the machine start with stock. This work was completed within shortest period because the machine was stopped during the production requirement.

In this paper, I make a report about PM9's start-up.

Our Approach to P&S Business / VOITH Group

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For the past decades, the situation surrounding paper industry has been changing dramatically. To enhance the production efficiency is one of the most important concerns. Under this situation, VOITH Paper has set up a new business line of P&S,"Product & Service". This is a message for

our market needs and we'd like to support customers' various kinds of suffering with new value components other than big investments. That is to say, we'd like customer to support smaller investment, but make a maximum profit.

In this paper, we will introduce our new concept “P&S” business and latest technologies of related to some stock preparation equipment's components.

Innovative Chemical Approach to Lower Energy Cost by Dehydration Agent in Press Process

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In the paper-making process, the press part squeezes out moisture by pressure treatment from the wet paper web dried by wire part that is a last process, and assume the role conveyed to dryer part that is a next process.

Thermal dry cost in dryer part is higher than mechanical dry cost in press part. Therefore, it can reduce the paper-making cost that improving dehydration as much as possible in the press part.

“Newluster A-25” as a felt warm-up agent improve nip dehydration by applying to felt, and it has an effect shortening the period required for initial warm-up of the felt.

Continuous use “Newluster A-25” during operation, the moisture of wet paper web is reduced in the press outlet, and according to the effect, it is expectable reduction of the amount of dryer steam or improvement in paper machine speed.

In this report, we introduce the effect of the press dehydration agent “Newluster A-25” with the verification results by measurement of a paper machine operation data.

Scale Control Chemical Assuring Better Performance of Pulp Process

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Scale deposition is a phenomenon that occurs in all pulp & paper making process. The extent, type and chemistry of scaling depend on type of wood, water and process conditions. Scaling causes severe unit operations efficiency loss and profitability problems. Calcium carbonate deposition is a very frequent problem when forming on heat exchangers and digester screens. This paper reviews (ⅰ) major causes of calcium carbonate deposition; (ⅱ) mechanism of scale formation; (ⅲ) the process problems caused and (ⅳ) discusses chemical solution that can be implemented to overcome the problem of scaling inside the digester. A case history of successful digester scale control in an integrated kraft pulping process in Asia Pacific, with crystal modifier type of product is discussed.

Greaseproof Properties of a Surface Coated with a Polyvinyl Alcohol

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EXCEVALTM is a novel copolymerized modification of polyvinyl alcohol (PVOH) by a special hydrophobic group enhancing its crystallinity and barrier performance at high humidity conditions. It has been registered as a Food Contact Substance in FDA and it has various potentials to be used in food packaging papers. In this paper, properties of coated paper with not only EXCEVALTM but also combinations of EXCEVALTM and other agents by size press are described. The combination of EXCEVALTM and fatty acid emulsions or fluoro chemicals gives larger contact values for water and oleic acid and higher oil resistance at folding parts than EXCEVALTM.

Development of New Paper Surface Strength Agent for Paperboard

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Paperboard thickness has recent become thinner from environmental policy and carbon dioxide emissions reduction point of view. Thinner paperboard may show poor strength properties, therefore, starch treatment onto paperboard will commonly be employed in fortifying paper strength. Corrugated cardboard is made of large amount of recycled fiber which can

provide poor strength properties as compared with fresh pulp. Surface treatment with starch solution can be applied in order to cover poor paper strength; however it is not good enough to achieve desirable paper strength for packaging. It is also a problem that high viscosity starch solution may not be easy to coat the paper surface homogeneously and poor bonding corrugate cardboard might be produced.

On the other hand, Polyacrylamide (PAM) based surface paper strength agents are available to prevent such trouble and widely used in industry; however these are more expensive than traditional starch. In this report, newly developed two types of PAM based surface paper strength agents "New Paper Surface Strength Agent A" and "New Paper Surface Strength Agent B" have been introduced. The feature of "Agent A" is that it can penetrate deep into a Z-direction of paper easily and thus, "Agent A" can show better distribution in inducing compressive strength with small quantity. "Agent B" is a modified high molecular weight substance and even higher molecular weight polymer can penetrate into paperboard very well. These agents can make corrugate cardboard stronger without any trouble.

Compact and Laboratory-Scale Calendering Unit
—Introduction of "Lab Calender"—

Masaru Futaba
Nomura Shoji Co., Ltd.

Sumet in Germany released its latest model of the Laboratory-scale calendering units. The compact Laboratory calender is a table-top design. The heated bottom roll is constructed from polished steel. The exchangeable top roll is constructed from steel, high-glossed polished, coated polyurethane, HNBR or composite as desired. An acrylic glass acts as a safety guard from injury. An integrated touch screen is used to set parameters and monitor the unit during calendaring. The sample is pulled through the rolls at a regulated speed and rolls- pressure is controlled. The advantage of this machine is flexibility because of the easily changeable rolls only taking in a few minutes. Short heat up time of the rolls is due to the small diameter, and constant temperature profile at the rollers is due to the special heating technology. The integrated sensor in the roller enables the control of the temperature in roll surface in high accuracy. This calendaring unit provides highly correlated results with the production machine and ensures the saving of time and costs of the testing

New Type, Automatic Small Roll Wrapping Machine

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With the increased speed and width of paper machines, larger paper rolls are produced for even faster printing machines. Corresponding to these requests, each machinery manufacturer is trying to develop high-quality, full automatic and labor-saving winders for bigger paper rolls with good quality. Thus, for more stable and efficient production, the recent trend of the finishing line is one unified wrapping system optional with the diversity of wrapping forms for various paper rolls from several winders.

I would like to explain in details the newly developed "Automatic Small Roll Wrapping Machine" which is suitable for the variety of paper rolls in small lots as well as the limitation of the space required.

Energy Saving and Efficiency of Cleaner Equipment
—Cleaning Efficiency, Energy Saving, Pulp Fiber Recovery—

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Cleaner system which can perform higher cleaning efficiency, or can be operated at equivalent to or higher cleaning efficiency compare to the conventional cleaner at lower energy consumption, and in the other case cleaner which can recover more pulp fiber is needed. Cleaner is indispensable equipment in the cleaning process, and must satisfy those requirements. When higher cleaning efficiency is required, it is often the case that removal of light weight debris, such as adhesive material, plastic or rubber, are insufficient. To increase speed of vortex, smaller diameter cleaner design is required. To reduce energy consumption in cleaner system, such a cleaner type which can perform high cleaning efficiency even in the operation of higher feed consistency can meet such a demand. To increase fiber recovery from cleaner final reject, cleaner system which can prevent pulp fiber flow into final reject can fulfil the necessity. We introduce cleaner technology which can meet such a demand of higher quality and energy saving.

Waste Water Treatment Performance Diagnosis Seen from Activated Sludge

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The waste water treatment performance diagnosis seen from activated sludge which we provide is comprised of multiple evaluations on the biota by microscope observation that include the evaluation of protozoa as well as metazoa of the activated sludge, that of biological property of the sludge floc (aggregate of bacteria), identification of emerging species and their volume among filamentous bacteria and actinomycetes, and further include the evaluation of the conditions of our original index organisms in the sludge.

The evaluation of the biota is done by using literature information and pragmatical indices established by the analysis of biotas and waste water treatment data collected from more than 200 waste water treatment facilities.

Therefore, with our diagnosis described above, we can understand the conditions of waste water treatment, problem and its cause more accurately than the conventional waste water treatment managing method using protozoa and metazoa as indices.

In this report, we would like to introduce you the examples where we applied the diagnosis for and successfully solved the problem of the rising of sludge interface and the floating of scum in the sedimentation tank as well as the issue of rising COD of treated water.

Andritz Technology for Bio Energy and Possibility
—Effective Use of Renewable Energy—

Daisuke Nagamine, Hiromi Kida and Chiaki Kawakami
Andritz K.K.

In order to cope with the global greenhouse problems due to increasing carbon dioxide emission from using fossil fuel more over the 200 years, it is essential to develop technologies for renewable energy and to utilize biomass more to reduce usage of fossil fuel.

Andritz has been focusing efforts to develop such renewable energy technologies. Today, more than 50% of Andritz' business is related to sustainable energy and green biomass utilization.

The History of Technological Developments in Pulp and Paper Industry: From Ts'ai Lun's Invention to the Birth of Modern Pulp and Paper Industry
Part 2: Unique Modification in Japan that Resulted in Washi Culture

Kiyoaki Iida

Paper making process that was invented in China arrived at Japan in the fourth or fifth century, and was developed to a unique one there. Mulberry and paper bush, which were main fiber sources in Japan, gives good sheet strength by relatively slight beating, maintaining their fiber length. This characteristic of the fibers, the use of viscous liquid from a certain plant, neri, at sheet forming and the modified sheet forming method called Nagashisuki perfected the process of washi, Japanese paper, making. The paper was good for writing with brush, and also strong enough to be used as a material for various commodities in daily life in Edo Period. In the beginning of the Meiji era, it was exported abroad due to its thin and even sheet formation. The industry, however, remained a cottage one. As modern printing system was imported and became common, washi lost its share to machine-made paper, and declined.

Corporate Profile & Products Information (18)

Daiwabo Progress Co., Ltd.

We Daiwabo Progress Co., Ltd., it is the industrial business company of Daiwabo Holdings Co., Ltd.

Daiwabo Holdings is organized 3 group companies of “IT infrastructure distribution business”, Textile and related business” and “Industrial machinery business”.

Daiwabo Progress has 3 businesses, such as Dryer Canvas Dept., Industrial Materials Dept., and Rubber Products Dept.

Then, we canvas department sell the Dryer fabrics, Forming fabrics and Plastic Mesh Belt for Paper-making industry or any another industries.

We have 2 manufacturing plants in Japan and Indonesia.

We try to improve customer satisfaction and introduce new technology, and expand our business globally.

－**Peer Reviewed**－

Optimum Operation Method of Activated Sludge Process Using TS Analyzer

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Activated sludge treatment is widely used as the waste water treatment process. However, its perfprmance is not enough clarified. IWA（International Water Association）proposes an activated sludege treatment model of ASM（ASM1、ASM2、ASM2d、ASM3）. ASM models are based only on the mass balance of O_2 using values of COD_{cr}, and they are not applicable to the actual industrial waste water which has large fluctuation of water quality.

In this paper, a new model ,which is applicable to the treatment process of actual industrial waste water as well as conventional activated sludge process, is proposed in addition to the measurement method using TS analyzer. The activity of activated sludge changes with the habitat condition in uptake, assimilation and dissimilation of organic matter in waste water with the consumption of dissolved oxygen. This proposed model considers the real activity of sludge calculated by the oxygen consumption rate measured with TS analyzer.