

TECHNICAL PAPER

Nalco Company: provider of services, technology and respect for the environment

Present for many years in the chemical industry, Nalco Company is an industrial water and energy services leader that provides Essential Expertise for Water, Energy and AirSM.

Maura Leonardi

Being a value - based provider represents for Nalco the focus of its strategy, aimed at proposing diversified services and technology. Since its inception, in Chicago in 1928 through the merger of Chicago Chemical Company and Aluminate Sales Corporation, Nalco (National Aluminate Corporation) has evolved and differentiated its product portfolio in concrete fashion (chemical, energy and water processing are its core businesses).

The Tissue Business Development Manager EMEA of Nalco's Tissue & Towel Division – Roberto Zulian, explains to us who Nalco is today: strategy, value and innovation, and also discusses TULIP™ Technology, which was launched on the market a few months ago.

PERINI JOURNAL (PJL): Please describe the Mission and Vision of the Nalco Group's Tissue Division. What about its objectives for the future?

ROBERTO ZULIAN (RZ): As far as our tissue-focused initiatives are concerned, Nalco's mission is to create value for the customer through differentiated services and technologies that save water and energy, clean air, enhance production, reduce operating costs – enhancing lives while protecting the planet. Our mission is to earn customers for life, offering sustainable solutions from an economical and environmental point of view. Our core competency includes water treatment and process chemicals and our corporate strengths are global presence, on-site expertise, and innovative products and services. In the tissue process side, Nalco works with customers in developing projects for reducing total cost of operations, improving machine efficiency and developing new paper grades.

PJL: New TULIP™ Yankee Coating: innovative technology. Why?

RZ: TULIP™ Yankee coating solutions today provide a sustainable source of competitive advantage due to the combination of unique and innovative chemistry bundled with suitable automation systems and monitoring tools in order to gain significant improvement in the creping process operations.

In order to satisfy consumer demand for premium tissue products, for years tissue makers have moved towards creping at lower moisture in order to boost sheet attributes in terms of softness and bulk generation. Low moisture creping is beneficial for the development of high adhesion between the sheet and the Yankee dryer surface, resulting in a more efficient creping process that leads to improved sheet characteristics.

However, lower moisture creping is also associated with a higher cost of operation due to an increased energy demand, various machine runnability issues and a higher potential for downtime. TULIP™ technology provides a complete new offering, whose main target has been to open the creping moisture operating window and improve process efficiency. Using Nalco Yankee Coating Space™ methodology, we have designed a unique platform in terms of adhesion, durability and coating softness. (Figure 1)

THIS TECHNOLOGY DIFFERENTIATION IS MAINLY DUE TO ITS UNIQUE PROPERTIES RELATED TO THE FOLLOWING ATTRIBUTES:

- greater adhesion;
- a wider creping moisture operating window;

- improved coating uniformity and softness;
- superior rewettability without negatively affecting coating durability;
- environmentally-friendly technology with no VOC and chlororganic by products.

Nalco has also recognized that despite the importance of crepe frequency to product quality and machine runnability, no industry standard currently exists, and analysis still relies on mostly manual techniques based on an individual technician's interpretation. This subjective approach is prone to large variability in crepe frequency measurements when comparing results from different evaluators. To address this need and remove the subjectivity inherent with manual analysis, Nalco has developed a software package tailored for crepe analysis of digital images. The Nalco Crepe Analysis Tool Box (NCAT) automates the analysis and provides a higher level of statistical information such as crepe size distribution, mean crepe fold length, standard deviation and other related statistics.

Additionally, operating parameters such as machine speed, web moisture content, level of adhesion, and effect of chemical additives can impact coating characteristics leading to crepe blade vibration. Crepe blade vibration can impact product quality, process runnability, and result in costly equipment repairs from chatter marks damaging the dryer surface.

Nalco Early Warning Chatter Detection provides a complete system for early fault detection and prevention, automatic advice for correcting existing or impending conditions and advanced condition based maintenance to improve Yankee coating performances, machine reliability and consistent creping process operations.

PJL: What are the advantages and the points of strength of this new product?

RZ: Nalco Company has developed TULIP™ proprietary creping technology, based on modified vinyl polymers. This new technology provides high adhesion over a wide range of creping moistures. Compared to conventional creping chemistries, the new coating tends to be more efficient, allowing for up to a 50% replacement ratio at equal or higher creping moisture. Coating uniformity and softness are also improved through utilizing this technology. The TULIP™ technology Yankee coating platform is capable of offering very high levels of adhesion both at the suction press roll and creping blade. Due to its very high wet and dry tack, TULIP™ technology can provide high adhesion within a wider moisture range. Lab determination and industrial application are clearly confirming that. (Figure 2)

To summarize, the primary advantages of TULIP™ coating technology for tissue manufacturing are:

- improved hand-feel softness (due to increased adhesion)
- reduction in the adhesive add-on by up to 50%, while maintaining the same level of adhesion;
- creping at higher moisture without a loss of adhesion and/or sheet quality, resulting in improved machine runnability and potential energy savings.

Know-how, knowledge of the field, investment in Research&Development are all factors that have allowed Nalco Company, and our Tissue & Towel team (or division, if that's how it should be referred to) to strengthen and establish brand awareness among investors, members of the community, customers, governments and employees, in regard to creating added value. •

For further information regarding the new TULIP™ technology, please refer to the Coating Space Programs page on www.nalco.com.