

61757EU: Advanced Solution for Enhanced Drainage and Productivity in Paper and Board Manufacturing

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DESCRIPTION

In the papermaking process, various chemicals are used to stabilize production and enhance efficiency. Retention and drainage agents are especially important because they affect fibre flocculation, chemical retention, and dewatering. These factors influence the formation, porosity, and strength of the paper.

61757EU is a technology recently launched by Nalco Water, an Ecolab Company, that is designed to optimize the drainage process in Board and Packaging (B&P) grades, thereby expanding Nalco Water retention and drainage portfolio (figure 1).

The charge and molecular weight/structure of polymers are crucial in the design of a well performing drainage chemistry. A comprehensive understanding of the interaction between these factors was essential for developing Nalco 61757EU, leading to a unique combination of charge and molecular structure resulting in an improved drainage efficiency without compromising formation quality (figure 2).

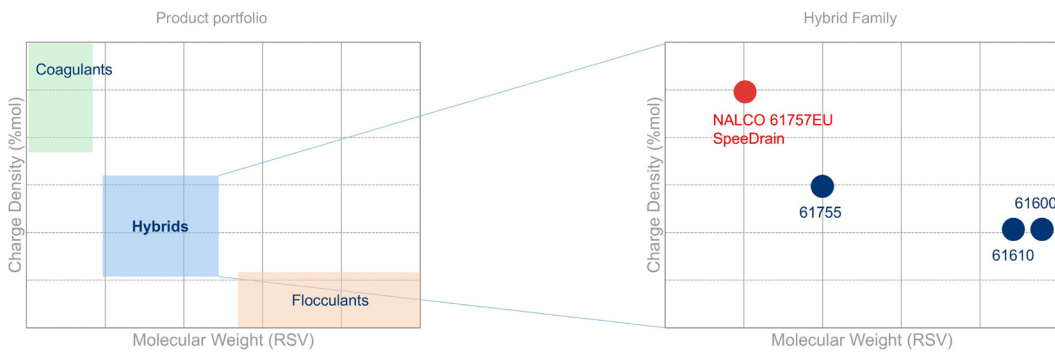


figure 1. Overview of the Nalco Water Retention and Drainage portfolio.

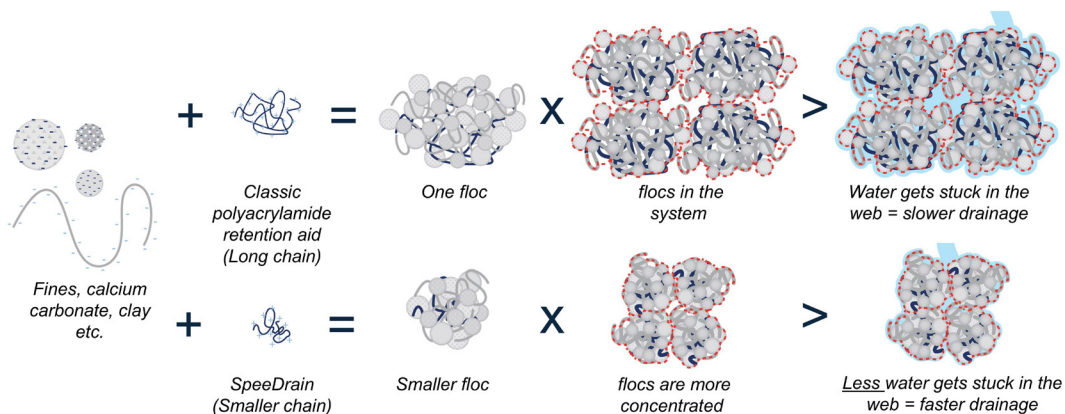


figure 2. Simplified scheme of the impact of molecular weight in the flocculation and drainage.

As it is well known, improving free drainage early on doesn't always enable production increase. A robust, cost-effective retention and drainage system using high-molecular-weight flocculants may enhance free drainage but also, form larger flocs that trap water tightly within the fiber network. The 61757EU technology shifts drainage to the vacuum-assisted zone, resulting in a more uniform paper with smaller flocs. This enables the press section to work more efficiently, removing additional water, thereby increasing press solids, as it is depicted in figure 3.

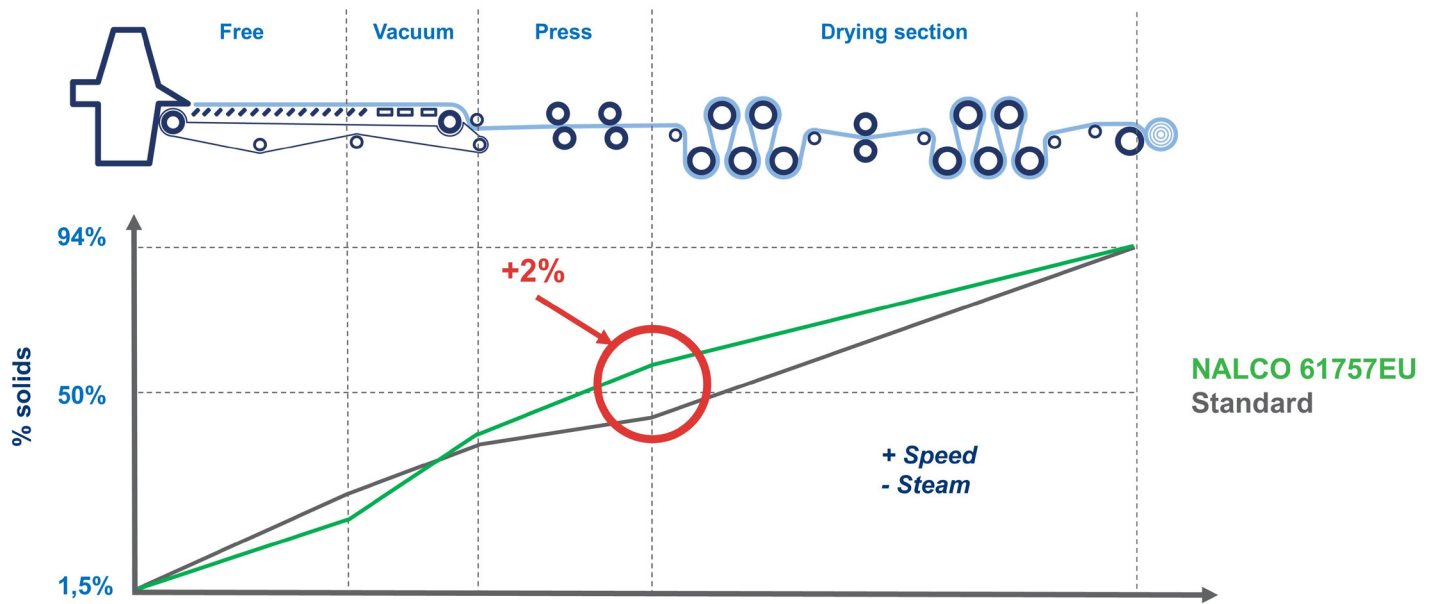


figure 3. Sheet dryness on the paper machine for Nalco 61757EU compared to a standard high molecular weight product.

Nalco Water applied 61757EU in a conventional paper machine manufacturing kraftliner with a blend of unbleached kraft and old corrugated container/cardboard (OCC). The technology enabled to maximize OCC content for cost reduction while preserving drainage and quality, and reduced energy costs. In another case, a recycled board machine aimed to diversify its grade portfolio with stronger paper and simplify the Retention, Drainage, and Formation program. The implementation of 61757EU resulted in improved drainage, leading to increased production and allowed the mill to produce paper with higher strength specifications, resulting in higher profitability and better runnability. These applications demonstrate that this solution enhances on-machine efficiency and sheet quality. It controls drainage on high-speed machines, improves ash/fines retention, and integrates well with existing programs.