

TECHNICAL PAPER

Roquette introduces VECTOR® to improve quality and ensure cost savings in tissue paper

VECTOR® is a product used in the wet-end process to enhance strength, and allows adjusting the refining level and the pulp composition (softness). This means allowing the producer to adjust quality, characteristics and costs.

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VECTOR® is a ready-to-use product in liquid form, conforming to FDA and BfR norms. The base material comes from a renewable, natural source and is completely biodegradable.

The primary bonding mechanism of tissue relies on the natural anionicity of paper fibers suspended in water. When VECTOR® molecules are introduced, the cationic groups are attracted to the anionically charged fibers and strong ionic bonds are formed. This electrostatic attraction between VECTOR® and the cellulose fibers results in moderate flocculation of the furnish and improved drainage and retention on the forming fabric.

The secondary mechanism is based on hydrogen bonds, the force that bonds fiber to fiber, as the sheet is dried. These bonds are enhanced by refining and/or VECTOR®. With this type of bonding, wet sheet strength is improved as well as the characteristics of the final paper.

THE BENEFITS OBTAINED WITH VECTOR® IC INCLUDE:

- Improvement of the principal strength properties:
- Better strength, which has a direct impact on tissue machine and conversion runnability.
- Improved internal bonding, which reduces the amount of paper dust formed during production and conversion.
- Possibility of reducing furnish costs by replacing chemical and high-grade pulps with other grades of fiber.
- Reduction in refining input resulting in:
 - Increased tissue thickness and softness.
 - Improved drainage and reduced dryer load yielding higher productivity.
 - Improved fines retention, with both virgin and recycled fiber furnishes.
 - Improved drainage due to the action of VECTOR® itself (independently of changes in refining) which also leads to greater productivity.

HANDLING AND USE. Dilution and dosing: VECTOR® IC comes in the form of a viscous, concentrated liquid. It can be dosed using either a volumetric pump or a metering pump but it has to be diluted to around 1% dry solids before it can be introduced into the furnish. This is so as to ensure that it becomes well distributed onto the fibers.

Addition Points: General addition point for strength is in thick-stock; for strength and retention in thin stock. If a wet-strength resin is required, VECTOR® should be added first.

Addition Levels: VECTOR® IC is normally added at a level of around 7-15 kg (comm.)/ton of paper, depending on the desired objectives and the furnish. o

- 1 Enhance wet strength and retention levels
- 2 Reduce dusting
- 3 Save energy and find the perfect balance between softness and strength

- Sanitary paper - 100% DIP
- VECTOR® IC 27216: 3 dry kg/t paper
- Dry tensile strength (MD):
 - from 145 to 181 N/m (+ 20%)
- Elimination of refiner: kWh/t cost saving