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Paper Title: Fibrillated cellulose as stabilizing agent in HI&I systems

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Abstract:

Household, industrial, and institutional (HI&I) products include a broad range of ingredients that are carefully combined to obtain formulations with optimal cleaning abilities. Cleaners often comprise in their list of ingredients a rheology modifier, which contributes to the performance of the products in many beneficial ways. Depending on the application, the rheology modifier can improve the formulation texture, tune the viscosity, stabilize the product, help to suspend insoluble ingredients, improve the dosing, spraying, dispersion, and adhesion of the cleaner on a specific material. The need to develop environmentally friendly formulations to meet consumers' demand and satisfy product regulations is driving the industries towards the choice of biobased ingredients, also concerning the rheology modifiers.

Exilva® fibrillated cellulose by Borregaard is a sustainable, non-toxic, microplastic-free, 100% naturally-based product and can be used as a rheology modifier for HI&I applications. Our fibrillated cellulose is a novel fiber material made from Norwegian spruce wood pulp. The pulp fibers are processed into fibrils, which possess a high water holding capacity and form a highly entangled 3D network in water suspension. Fibrillated cellulose is a ready-to-use product that can be directly added to cleaners' formulations, and thanks to its shear thinning behaviour, yield stress values and tolerance of harsh environments, it gives them advanced rheological properties and long-term stability. In particular, from adding cellulose fibrils to HI&I products' formulations, unique benefits can be expected: flexibility in formulating under a wide range of conditions (pH, temperature, high shear processing techniques, electrolytes' content); enhanced stability and anti-settling ability of water borne or polar solvent systems; high quality sprays with anti-dripping capacity and improved dwell time.

In this presentation, we will show the different functionalities exhibited by this innovative cellulose material and the benefits that it can bring as a rheology modifier to cleaning products. We will show that cellulose fibrils can improve the compatibility and stability of fabric softeners systems with surfactants. Last, the effect of fibrillated cellulose in acid cleaners' formulations to obtain long term stability and efficient sprayability and product application will be presented.