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## Development of Softener Containing Metal Nano-Particle for Multipurpose Textile Finishing

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**Abstract:** Treatment of cotton-based fabrics with softeners is very important to enhance its agreeable soft hand, antistatic and sewability properties as well as to improve wear-ability of cotton fabrics. Functional finishing of cotton fabrics with nanoparticles impart the fabrics one or more functional properties. These functions include, for example, self-cleaning, antimicrobial, UV-protective as well as antimicrobial activity. This research work aimed to develop a new type of softeners formulation having one or more nanoparticles for application as multi-functional softener. The effect of softener type and kind of nanoparticles used on the ultimate softener and nano-particles properties were investigated. The stability of softener nanoparticles hybrid formulation as function of softener and nanoparticles type were as determined. The treated fabrics were monitored for tensile strength, softness, wrinkle recovery angle and antibacterial activity particle size and shape by mean of UV-vis-spectrophotometer, X-ray diffraction, SEM and TEM analysis.

**Keywords:** Cotton, Functional Finishing, Softener, Nanoparticles, Antimicrobial.

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