

# TITLE: Antimicrobial Textile Coatings as Industrial Case for implementing ASINA Safe-by-Design Methodology

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## ABSTRACT:

Antiviral surfaces are considered important in preventing the spread of Covid-19 in both health care and community environments. The incorporation of biocidal nanoparticles (NPs) into surfaces has received significant attention especially in textiles for self-cleaning, self-sterilization, and odor prevention applications. The surface of these NPs is chemically active or can become active when exposed to a stimulus e.g. solar irradiation. The interface between the NP and the fiber surface must be tailored to optimize the surface area volume ratio of the NPs for maximum antiviral activity. Mica Nanotech Ltd offers a novel finishing approach through application of a safety-by-design (SbD) methodology. NPs are sufficiently anchored into the surface of the yarn so that the bonding between the NPs and the textile is durable for efficient viral killing, and does not create a health or environmental concern due to the release of NPs. Applying a SbD approach improves the finish efficiency by lowering the applied solids content in the process, improves performance, and enables sustainability with a focus on societal impact of harmful biocides. This coating can contribute to the textile industry by offering advanced properties to the textile, without affecting the fabric performance, such as pressure difference in air filters, or colour and comfort in personal protective equipment.