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# REINFORCEMENT OF COTTON YARNS WITH THE NOMINAL ADDITION OF HIGH PERFORMANCE FIBER

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## Abstract

Ring- and rotor-spun yarns of predominantly cotton content have been produced by using a high performance gel-spun polyethylene (PE) fiber, Dyneema$^{R}$, in intimate blend with selected white and naturally colored cottons of different qualities. Test results have shown that a nominal (10 to 15%) addition of the PE fiber increases yarn breaking strength/tenacity considerably, depending on the qualities and characteristics of constituent fibers and the yarn twist. This improved yarn strength may be particularly important in certain textile applications, where the 100% cotton (whether white or naturally colored) and/or the traditional, predominantly-cotton-rich blends of cotton with conventional synthetic fibers, such as nylon and polyester, do not meet the required specifications of tensile and other characteristics. Research attempts are continuing at SRRC to develop some new (proprietary) fabrics, such as novel denims, by weaving these relatively stronger, predominantly-cotton-rich yarns without the traditional (warp) yarn-dyeing and, possibly, sizing processes which are costly, complex, and environmentally sensitive. We intend to present a full paper describing the materials and procedures used in the development of these unique yarns and fabrics, when the work is successfully completed.