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White Speck Quantification: A Human Inspection Technique

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Before a quality-related issue can be addressed from a causal and predictive perspective, there has to be a reliable and repeatable system designed to detect and quantify the problem. Current fiber testing was not designed to measure or detect the presence of dead or immature fibers in the small quantities that have been determined to be detrimental to the quality of dyed finished products. In the absence of applicable fiber testing, the most logical step would be the development of a counting procedure that would allow the accurate and repeatable quantification of white specks in a test medium that has significance to the end product. It is a logical hypothesis that white specks appearing on the surface of dyed yarn will also appear to some degree on the surface of cloth made from that yarn. To test this hypothesis, human inspection techniques were developed to quantify and compare white specks present on yarn and cloth made from that yarn. Using this inspection technique, the quantification of white specks was less variable on the surface of yarn than on dyed knit fabric tubes prepared by the Fiber Analysis Knitter (FAK). Yarn was less variable reading-to-reading and operator-to-operator. The method described in this study using dyed yarn showed promise as a measurement system for the accurate and repeatable quantification of white specks.