

[Home](#) » [Volume 9 / 2005](#) » [Issue 4](#) »

## Expert and Novice Operator Comparison with Scanner-based Image Analysis for White Speck Detection on Dyed Yarn

---

Authors: James L. Simonton, Mario G. Beruvides, Pelin Z. Altintas, and Kootak Kang

Pages: 215-222

*Textile Technology*



[Full Text PDF](#) (325K)

Current commercial fiber testing was not designed to measure or detect white specks 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 counting methodologies, which would allow the accurate and repeatable quantification of white specks in a test medium that has significance to an end-product. Prior work indicated that dyed yarn was such a test medium, but the manual white speck reading process used was influenced by the limitations of human inspectors. There is a need for the application of scanner-based image analysis techniques and protocols to replace the human expert in the quantification of white specks on dyed yarn. One of the first challenges was describing a white speck from a human visual defect perspective in parameters that could be identified by image analysis counting software. This study undertook the task of creating an operational definition of a white speck confirmed by human observations that could be used to establish measurement parameters for a scanner-based image analysis procedure for counting white specks. Results demonstrated that by using scanned images of dyed yarn, in conjunction with counting software, it was possible to develop an operational definition of a white speck in terms of pixel area and gray scale level that relates to human observations.