



Synthetic Fabric Manufacturer: Reestablishing continuity of supply

An SBTI White Paper

Background

Our client is an innovator and manufacturer of specialty materials. A key part of their product portfolio is engineered specialty fabrics used in healthcare including gowns used in hospitals and operating rooms.

Persisting Challenge

The end customer noticed discolorations in their surgical gowns. Analysis showed they were black fibers that had become impregnated into the woven mesh of the breathable material. These fibers presented no safety or health hazards, but the perception was the fabric was dirty. New orders were placed on hold. A significant inventory of semi-finished materials was in a post manufacturing location. This material was quarantined and if scrapped would represent a loss of several millions. It was a mystery as to where the fibers were coming from, how it could be prevented and how much, if any of the semi-finished material could be salvaged. More importantly, continuity of supply and customer confidence needed to be reestablished.

The Analysis and Root Cause

The black fibers were practically impossible to detect on the high volume, fast moving production machines. Post production inspection by trained staff was expensive and failed to catch 80% of escaping defects. SBTI mapped the entire production process and collected machine data for each element of the

process. A sampling methodology was used across the semi-finished inventory that comprised over 200 gigantic rolls of woven polymer. Statistical analysis of the defect pattern identified the key production machine where contamination was occurring. Working with key operators, SBTI identified a roller on one of the conveyors that fed the fabrics into the weaving process was the problem. It was in an area underneath the main machine and hard to view and access. An older run of a black material had overheated. This polymer melted onto the roller. Many months later it was flecking off microfibers that were being ingested into the new weave, causing practically invisible contamination.



Improvement Areas

Data collection and analysis methods were instituted to ensure quality goals are consistently met. Expensive inspection procedures were reduced. A new cleaning process was established for areas of the production process that were hidden from normal view. This prevented the re-occurrence of the contamination problem.

Results

Statistical analysis of the semi-finished material identified only 5% of it was contaminated. This data was shared with the end customer who had sufficient confidence to accept the uncontaminated product. \$2.2 million in write offs were avoided.