



# **Attalus Fiber System**

## **Real Time Product and Process Information**

## **Introduction**

The availability of continuous, accurate and relevant information is critical in allowing manufacturers to effectively make decisions about the production process. Often times, the ability of manufacturers to see in real time what is occurring in their process has been limited and depending on the collection method, flawed.

The Attalus Fiber System fills a manufacturing need in providing information that to this day has been lacking on both the product and process. The Attalus solution provides manufacturers with the clarity of understanding on a product and process level to optimize production to reduce costs and increase revenue.

The following paper focuses on issues facing today's polymer fiber producers and details the critical components required from an on line monitoring system needed to provide the process intelligence for increasing a manufacturer's competitive advantage.

## **Issues Facing Manufacturers**

Optimize Production – Manufacturers are being forced to produce higher quality product while their margins continue to erode as a result of rising raw material costs. As such, manufacturers must maximize the use of current assets in increasing first pass yield.

Maintaining market position - Manufacturers are faced with high competition and overcapacity. This allows the end customers to pick and choose the manufacturers that can deliver on low price and high quality products.

Complexity of Product Changes – Some manufacturers, like carpet manufacturers, go through a number of product changes on a weekly basis. Manufacturers can reduce costs by reducing downtime and waste during these changeovers.

Traceability – Customers are demanding increased accountability for packages and traceability of its quality record.

Fewer Staff – Recent downsizing has meant fewer staff to monitor and manage operations.

Lack of Processing Knowledge – In many facilities, there is a lack of fiber making experience on the shop floor due to recent downsizing.

Lack of Integrated Information Source – Manufactures are using the limited information available to run production processes. The collection of the information is often not centralized for quick and easy access. As such, the limited information available combined with the timeliness of data collection impedes management from making the decisions necessary to optimize production.

Inventory Buildup – Depending on the quality requirements, product can be “quarantined” for the time needed to run the necessary off line laboratory tests.

## **Problems with Current Approaches**

**On Line Information** – Most facilities record some real time data related to their pumps, winders, godet temperatures and other machine parameters. While these data points provide some comfort as to the performance of the machine, they are limited in informing manufacturers whether good or bad product is being produced as they represent in-direct as opposed to direct measurements of the desired output.

**Laboratory Systems** – Laboratory systems have been the adopted norm in determining product quality. Testing is done manually. Often times only the last meter of yarn from a package, made of thousands of meters, is tested. This result is then applied not only to the package but to the entire batch. It is clear that this information is not representative of the overall quality of the batch. As well, the manual nature of the test is prone to error, bias and delay.

**Lack of Accurate or Relevant Data** – The information that is collected and tracked is information that is readily available such as line breaks, maintenance logs etc. Often times this information is tracked manually and depends on the operator's time and knowledge in order to fill out reports accurately and informatively. The available tools for data entry and the means through which the data is compiled limits the accuracy and relevance of the data.

**Performance Measures** – A plant's performance measures need to be benchmarked. Inaccurate, biased, delayed and often times a lack of data prevent manufacturers from developing the benchmarks required and optimizing their production.

**Multiple Plant Systems** – Plant operations are managed with data that is easily available. This data can come from a variety of sources, at different points of the production process, and at different times. There is no automated method of consolidating this information into a single view of the current production. As such, management often does not have clear, real-time, actionable information at their disposal.

**Continuous Improvement** – Managers responsible for continuous improvement (six sigma) projects do not have the detailed manufacturing information necessary to undertake successful quality projects. Measurement is a key component of any CI project. As such a facility cannot improve on what they cannot measure.

## **Integrating Attalus Into Manufacturing**

Manufacturers need information on the plant floor in order to improve. Some manufacturers are information starved while others have data to analyze. Even the most sophisticated manufacturers that track and analyze data would admit that they are missing fundamental pieces of information that would improve their production flow. Attalus fills this void.

Attalus is an on line monitoring system. While the idea of on line monitoring in the fiber industry is not new, the focus generally has been on sensors, and their ability to monitor continuously the quality of fiber during production. While Attalus fills this need, this focus is only one dimension of the Attalus System's potential.

Manufacturers that quickly buy into the Attalus System acknowledge and look past the power of the sensor technology and focus in on the value of the information and how it can improve their manufacturing process.

The Attalus System can and is often integrated with machine signals and other sources of manufacturing data. As such, the scope of the Attalus information extends from the fiber, to the machine, to the manufacturing process. This provides manufacturers with new information on the quality of the product as well as meaningful metrics on the performance of the machine and operators. With consolidated, meaningful, real-time data, Management can now act decisively to affect change that results in increased productivity, revenue, quality, and reduced costs

## **Benefits of Attalus**

Facilitate Production Improvements – Attalus provides data to allow Management to understand where and why downtime, poor product quality, scrap and other factors occur. The knowledge derived from this data allows Management to be proactive in driving process improvements.

Improve Uniformity – Attalus provides 100% continuous measurement which over time, empowers operators to tighten product and process limits and specifications.

Lower Costs – Information supplied by Attalus is in real-time and allows operators and Management to make immediate decisions that will reduce downtime and increase production of Top Grade quality.

Increase Revenue – By knowing the true grade of a package, manufacturers can effectively segregate packages and confidently ship the right grade product to the right customer. This provides the opportunity to increase future business with downstream customers while avoiding costly returns and buybacks. It also allows manufacturers to charge the right price for the right product and thus increase the net realized selling price.

Maintain machines in real time – The performance of the machine is linked to the quality of the product. As such, quality degradation can be linked to machine maintenance items. Not only does this data allow operators to fix issues before the product goes off specification, it allows operators to fix issues when they occur and not when they are scheduled to be fixed.

Improve Traceability – The Attalus System takes a number of inputs from the machine. Through these inputs, information for each package is recorded and can be traced to machine, position, threadline and time produced.

Reduce Off Line Testing – Data obtained from Attalus, eliminates many of the costly and time consuming tests performed off line in a laboratory. The quality information supplied is in real-time and covers 100% of the fiber produced, and not simply a statistically miniscule sample. Attalus can also reduce laboratory testing by allowing informed decisions to be made on which packages to test as opposed to blind sequential testing.

Reduce Inventory Hold Time – The reduction in laboratory testing reduces the “quarantine” period for a batch. Depending on the metrics for product release, the data supplied by the Attalus System can be used for real-time, product release.

Track and Store Accurate, Real-Time Data – The Attalus system provides and integrates the data needed to make informed, accurate decisions. Managers can look at production performance on a daily or shift by shift basis. Management

reports with standardized benchmarks can be developed to allow Management to measure the business metrics needed to drive best practices.

Facilitate Product Changeover – Product changeover can be easily facilitated by having immediate feedback from all threadlines as well as comparisons of data from previous runs of the same product. This immediate feedback provides for more efficient product changeovers.