ToolTrack MES: Take Control of Your Data

www.chainreactionsystems.com 925-407-2070

"With ToolTrack, we're automating data acquisition to reduce errors, improving visualization with customizable reporting and getting data to engineers quicker."- Heather M., Characterization Manager

Production & Development

ToolTrack is uniquely designed to balance the competing requirements of high-volume production as well as R&D. In the semiconductor industry, this can be exceptionally challenging due to the nature of its complex processing and equipment capital investment. It's imperative to squeeze every hour of productivity from bottleneck tools and minimize rework and scrap. This is a daunting task without the proper data, and even more difficult when the task of gathering the *right* data is time consuming.

"…APIs enable data loading directly from metrology tool interfaces, making manual typos and convoluted macros a thing of the past."

Run-to-Run

Epitaxial wafer manufacturing requires the use of intricate reactors that must be tuned, often between every process run, by skilled technicians and engineers. The subsequent characterization of each wafer post-epitaxial growth is critical in determining what variables should be modified on the reactor to keep it running at peak efficiency. The longer it takes to acquire and trend this data, the more time is lost for production.

MES Modernization

In July of 2020, CRS began the implementation of ToolTrack at SCAT because large volume customers were requesting more data granularity at higher frequencies to better manage their supply chains. Within a matter of weeks, the operational logistics for several key products from raw wafer management to epitaxial growth and characterization were being managed in ToolTrack, leading to quicker and more accurate answers when a customer asks, "What did we learn during that epi run?" Furthermore, simple and customizable Application Program Interfaces (APIs) enable data loading directly from metrology tool interfaces, making manual typos and convoluted macros a thing of the past.

The Truth Is in the Trends

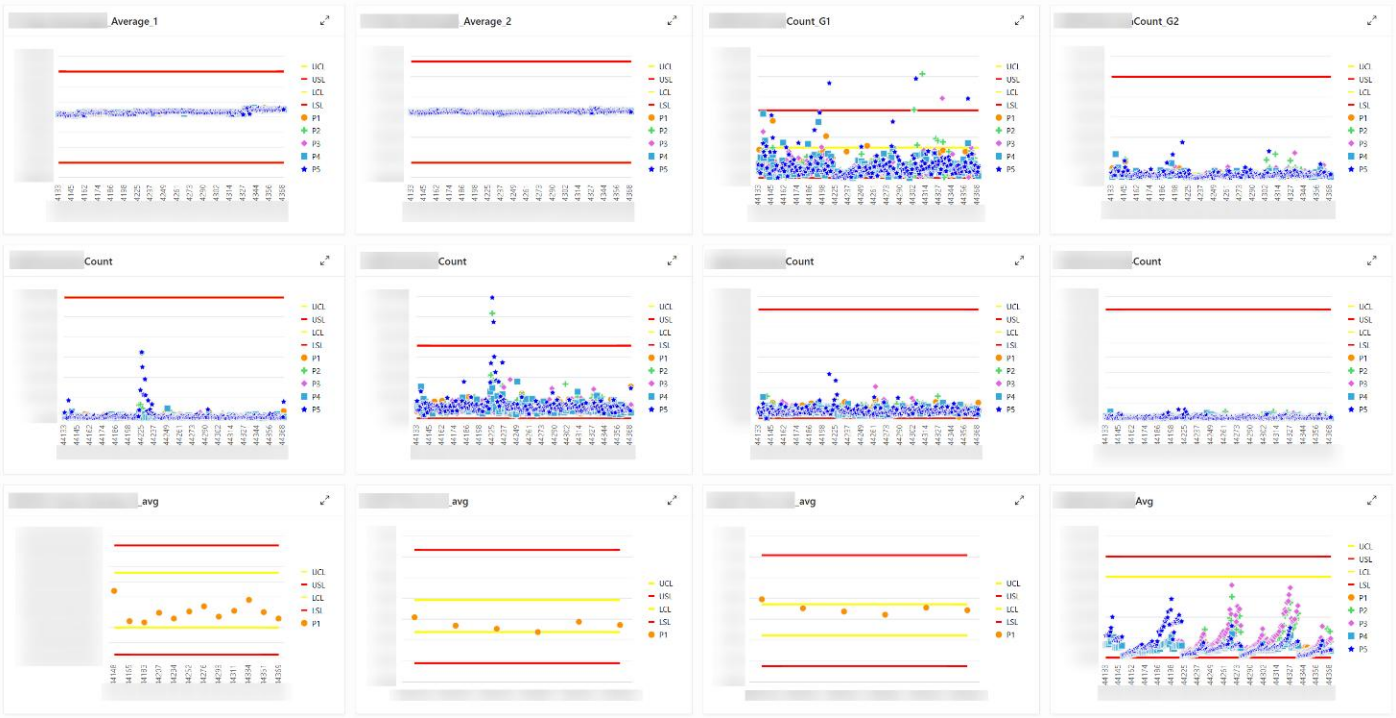

Figure 1: Real SCAT Epi Trend Dashboard.

Once the data pipelines were built, CRS worked with SCAT to build multiple interactive real-time dashboards showing key epitaxial characterization metrics for each run, broken out by reactor pocket (since each reactor can process multiple wafers at once). This allows the engineering team to instantly spot out of control trends across a series of runs, and even individual pockets that may be more prone to excursions after multiple passes. These dashboards are used every day in morning operations meetings as they can be delineated by specific date ranges, product types and reactors. It used to take an engineer 30-60 minutes to generate only a subset of these trend charts; now it takes less than 10 seconds.

TOOLTRACK™

We deliver results.

About Sumitomo Chemical Advanced Technologies

Based in Phoenix, Arizona, SCAT provides development and high-volume production services for epitaxial wafers and related devices. Learn more at https://www.sumichem-at.com.