Calculating KPIs During Heats

Seeq®

METALS & MINING

Data Sources

- Historian Data (Ignition)
- LIMS data (SQL)

Data Cleansing

- ToCondition to Identify Heats

Calculations & Conditions

- Value Search to Identify Power On Condition
- Signal From Condition to identify power on time per heat
- Deviation search to understand when power on time is above recommended limit

Reporting & Collaboration

- Description of how results were shared with the team and company

Challenge

In arc furnaces, steel manufacturers refer to the different batches of steel being produced as heats. A steel manufacturing company wanted to be able to calculate various KPIs and quality indicators during each heat. Due to the large number of heats in each data set, the KPIs can require extensive manual labor to calculate. This leaves the engineering team with little to no time to deeply analyze the data and make better production decisions after the data and results are finally pulled and organized.

Solution

Using Seeq's advanced analytics tools, the steel manufacturer can identify each heat using the heat number signal from the historian. Once the heat numbers have been identified, various metrics for each heat can be calculated using both historian signals and lab data. The KPIs are then used to determine metrics over each shift. The steel manufacturer can also define ideal heats and use the reference profile tool to understand when operations are outside of defined boundaries. These boundary exceedances are then used to track whether something is experiencing long-term drift in the process, or is just a one-off deviation.

Results

The steel manufacturer was able to build an organizer topic that they updated each morning. This allowed them to see daily performance and perform per-shift corrections as needed to further optimize the amount of time spent in each stage of operation. They have taken a process that would have been hours of work in excel spreadsheets and now can be updated and sent to the team automatically. The plant leadership team can very quickly see performance over the last day and focus on boundary excursions to troubleshoot over the next shift of operations.

Seeq workbench showing the various heat (or batch number) as well as a calculation of a KPI (Power On Time) over each heat.