

A global manufacturer of ink for inkjet printers, and toners for laser printers and copiers, Fujifilm Grangemouth has 6 main production units with a number of support units. This is a multi product plant with all units computer controlled employing 75 manufacturing and maintenance staff operating 24 hours a day, 7 days a week.



FUJIFILM

Lean Team

Graham Rae – Operations Project Manager

Shona Glaister – Development Chemist

Katie Thewlis – Analytical Sciences Team Leader

Leigh Robertson – QA Specialist

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The Lean Project

The team were tasked with the “lean analysis” of a Fuji Dye QC process. This product was invented in Japan and launched during 2003. Production relocated to the Grangemouth site in 2009. The process is carried out over a number of stages with the most expensive reagents used at stage A, therefore all stages of process have a high materials value and hence a high element of QC activity.

Problem & Objective Statements

Problem: The Dye analysis appears to tie up a high amount of QC resource

Objective: To optimise the efficiency of Fuji by freeing up analyst and instrument time and reduce the lead time for analysis.

Utilising Lean Tools

The team analysed each step as they developed a value stream map. The overall process was far too detailed to be represented on a single map and the team began to gather data that had not been made visible to operational personnel previous to this lean initiative.

Data from 2009 when the product was introduced highlighted the actual number of unique samples, number of unique tests (e.g. strength, sodium) and the number of sample results (e.g. strength of part 1 & 2). This provided

a benchmark for comparison to 2010 and the team produced Pareto charts of activity as they began to question the process and identify why specific methodologies had become part of the overall process.

This highlighted a number of surprise results and gave the team scope for change and improvement. Very detailed investigation of all samples and tests during 2009 & 2010 provided the team with information that could be used to simplify activities. This was further developed through the 5 why’s approach in an attempt to get to the root cause of inefficient processing.

The team produced a process flow chart to analyse each QC activity at every stage and this was used to reduce the amount of QC testing for implementation during 2011.

Actions

Over 2500 testing sub-processes have been eliminated from the overall QC process as the team have set up new methods of working, highlighted on “current state” versus “future state” processing. Charts of Pre and Post Lean activity were created for communication of the new methodologies. Longer term action lists have also been produced for further improvements after next manufacture utilising the “lean tools” that the team developed during the “lean programme”.

Business Benefits

The complete project went on to identify improvements to the company “Blue Book analysis” and “Re-testing” in QC which highlighted a number of issues that could be addressed. The team were able to demonstrate tangible benefits as follows:

- A saving of 2,061 hours of QC analyst time, equivalent to 25% of the original time spent analysing this product, which can now be used on other value added activities
- A financial value of £63,000 once the new process has been implemented
- A reduction in analysis consumables / reagents
- Reduced solvent usage, energy usage and lower running costs

Future Steps

A system will be introduced to remove the current “blue folder system” for next manufacture and the QC IT system (LIMS) will be used to record all instances of re-testing for on-going root cause analysis. Further “lean thinking” will be applied to all operational processes within the QC lab

Environmental benefits of “Lean”

The team have calculated that solvent usage will be reduced by 80 litres and energy consumption will be reduced by 900 Kw hr.

“In the early stages we found applying specific lean tools difficult within our environment. However highlighting inefficiency became the catalyst for positive change as we began to question “the way we do things”. It has been highly motivational to see a project through that is allowing us to increase capacity utilising the same resource by elimination of non-added value work.”

The Fujifilm QC Lean Team