

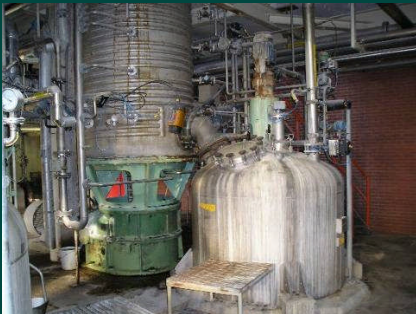
Case Study

Reduce reject rates of Starch soluble in cold water

Project background

An international starch manufacturer produced starch soluble in cold water for use in the wall paper and building industries.

Management wished to improve yields. Other projects had concentrated on removal of excess dust in production but this project concentrated on acidity and viscosity



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Problem

Management were concerned that over 50 tonnes per year of starch soluble in cold water were being rejected for incorrect pH or viscosity reasons.

A lean Six Sigma project was set up.

The team analysed which type of starch had the largest volumes and reject rates on which to concentrate their analysis.

They discovered that dosage of sodium hydroxide and epichlorohydrine had the greatest variation.

Acidity was also subject to excessive variation resulting from lack of standardisation of phosphoric acid dosage application.

Operators contributed to dosage variation because of lack of clarity of instructions.

The team also noted variation in batch processing time, downtime caused by delays in raw material availability, and excess powder on some batches due to inadequate mixing.

Rounding errors were also found in the dosage software and removed.

Solutions

After discussions with the customer the pH specification was amended to be less alkaline, and to have a narrower pH range. Equipment was purchased to allow more accurate measurement of sodium hydroxide and phosphoric acid.

Recipes were revised with standard operating procedures to ensure constant application in production. Operators were trained in new measurement, dosage and logging procedures to minimise operator to operator variation. Checks were introduced before titration with data-logging and random sampling.

Setup times were reduced and drum drier speeds were increased.

Dosages of chemicals were amended and subject to introduction of process control charts which improved the average dosage and reduced variation.

Business benefits

Defect levels as judged by the customer dropped to almost zero parts per million saving \$90k per annum with a spin-off saving for a related starch product and additional sales of \$280k per annum.