

# Problem Analysis Improves Productivity

## Manufacturing

### CLIENT

Australian Vinyls manufactures 65% of the Australian market for the vinyl resins that are used to produce PVC pipe and other products. The resins are manufactured in a suspension polymerization process that is carried out in batch mode in a pressurized reactor.

### CHALLENGE

Build-up in the reactor tanks requires inspection and cleaning after a set number of batches. Cleaning was done after every three or four batches until the 1970s when suppressants were developed that reduced build-up to levels that required cleaning after 30 batches. In the 1990s, a new mix and application should have allowed the plant to extend maintenance to 200 batches between inspections and thousands of batches between cleanings. However the Laverton reactors still needed more frequent cleaning, which added time and cost to production.

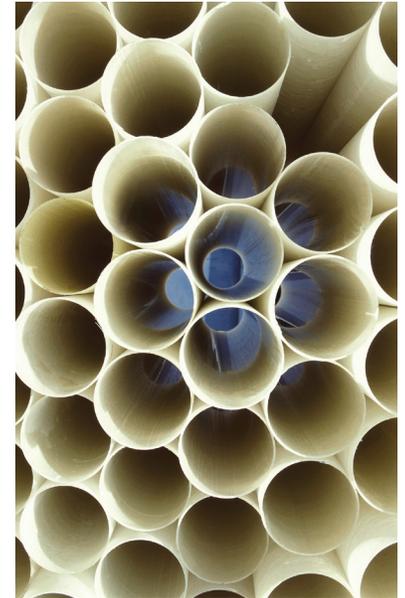
### SOLUTION

A cross-functional team used Kepner-Tregoe Problem Solving & Decision Making to resolve this issue. As the team developed the problem specification, it became apparent that there were several series of problems. A new Problem Analysis was prepared for dealing with the build-up initiation sites. This became a major project as the team worked through each series of problem resolutions.

### RESULTS

The initial objective was to extend the life between cleanings to 250 batches. When the project was declared complete, one reactor was at 450 batches and still going strong and the other had achieved a successful 250-batch inspection after the last set of changes had been made.

The increase in productive time added 3,000 tons of PVC resin production and significantly improved profit. However the biggest effect was that the initial project acted as an enabler for additional productivity improvements. Ultimately, improvements increased annualized production by over 20,000 tons, with a significant increase in profit.



### SCORECARD

- Initial solution increased production by 3,000 tons and reduced maintenance costs
- Subsequent related opportunities increased production by over 20,000 tons
- Ultimately improvements generated substantial profit improvement