

Case Study: Reactor Improvement

- 🚫 *Design limitations of existing agitator identified.*
- 🚫 *Cost-effective recommendations made for improved design*

Process Issue

Difficult powder draw down into liquid bulk required excessive use of wetting agent, which had to be separated and treated downstream.

Defined Project Scope

Improved agitation system for draw down with minimal wetting agent.

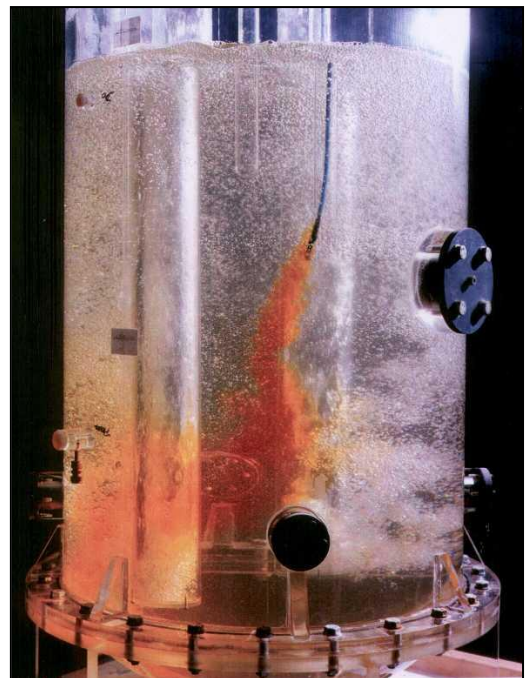
Solution

BHR Group data applied to design a new agitation system. P-10

Client Benefits

Cost savings of \$10 million through:

- ✓ **90% reduction in surfactant used**
- ✓ **Reduced separation**
- ✓ **Elimination of need for purpose built effluent plant**



Typical physical model experiment utilising specialised equipment at BHR Group

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Case Study: Improved Gas/Liquid Mixing

- 🚫 *Design limitations of existing reactor identified.*
- 🚫 *Recommendations made for improved reactor design*

Process Issue

Poor reactor design led to low gas liquid mass transfer, giving poor product quality from chlorination reaction.

Defined Project Scope

A solution was needed to optimise the impeller combination, to improve liquid flow patterns and homogenise vessel contents

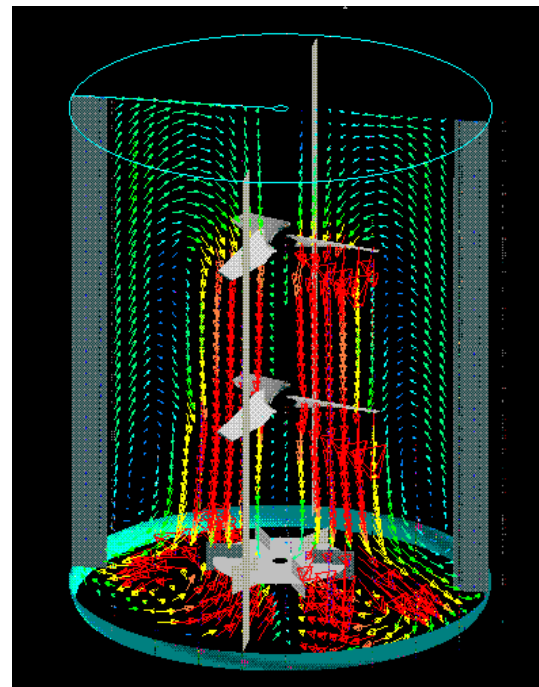
Solution

Analysis of the performance of the existing impeller combination using BHR Group data. An improved design was recommended. The impeller modification removed a compartmentalisation problem resulting in better performance.

Client Benefits

Significant savings through:

- ✓ **50% reduction in chlorine consumption**
- ✓ **Uniform product quality**



Flow pattern in a stirred tank with multiple impellers

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