

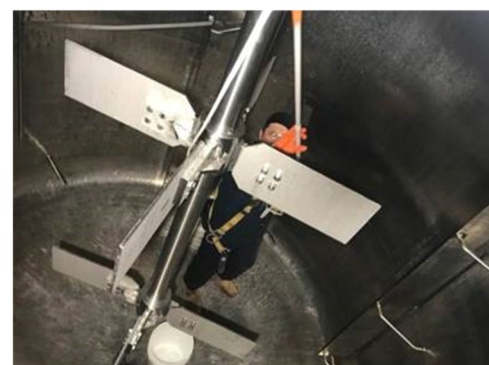
OIL & GAS – CASE STUDY

Chemical Manufacturer Increases Yields, Extends Reactor Run Times and Reduces Cleaning & Maintenance Costs



Results

- The e9 treated chemical reactor ran 47 days without a deep cleaning.
- Exceeded previous time before cleaning by 9X.
\$\$ Saved in fewer cleanings during this period: >\$170k.
- Unexpected Improvement: Increased Yields per Reactor Cycle



Background

Many chemical companies supply various chemicals to the oil and gas industry for chemical injection in wells: fracking agents, friction reducers, anti-bacterial chemicals etc. These chemical companies operate chemical reactors to produce batches of different blends for different customers and fields. They face huge costs in maintenance and cleaning of their reactors at every blend change out. Maintenance workers use caustic chemicals and power washing to get rid of the deposited contaminants and prepare the reactor for the next blend. Even without a blend or formulation change, reactors can become contaminated to the extent that deep cleaning is required every few batches (8-12). Each deep clean event can cost anywhere from \$10K - \$12K in cleaning expenses, not including the loss of yield and loss of production due to the interruption.

Customer

Developer and manufacturer of innovative oilfield chemicals used to help customers increase production. The company is located in Tyler, Texas.

Application

This company reached out to explore the possibility of treating the internal surface of their chemical reactor to reduce deposition on the reactor's walls, probes, shafts, agitators, lid, ceiling and walls. They also wanted to create an easier, quicker and cheaper cleaning process. Upon consulting with the e9 Treatments Application Engineering team, it was decided to treat the entire internal surface of the reactor with our nanoscale surface modification treatment.

The reactor shown at right was producing Friction Reducer.



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Per the Operations Manager:

"If we could bring the NPT (Non-Profit Time) and cleaning cost down by 30%, we have far more than paid for ourselves on the reactor side. If we also could do this on the trucking side, we would have a home run."

Results

Success was considered > 8 days of run time without deep cleaning. The customer used the e9 treated reactor for 5 different blends of products and carried out north of 70 batches, with only light washing between product change. The reactor ran for 47 days without a deep cleaning, which was considered a huge success.

The company was able to run between 35 and 40 batches with no issues of buildup on the reactor when running a single blend. During their study, they also recorded an increase in average yield per batch, which was attributed to a reduction in loss of product stuck to the walls of the reactor.

With implementation of e9 Treatments on their chemical reactors, the company saw savings greater than \$30K per reactor per month just in reduced cleaning intervals and costs. After success with the first reactor, the company began using e9 Treatments on 6 different reactors across two job sites, leading to a combined savings of over \$170K/month.

Testimonial from the Tyler installation:

"We had great results at the Tyler Plant, not only did the reactors run longer and require less deep cleaning, but per operations, we experienced dramatic improvements in yields from the treated reactor due to material not sticking on the walls." — Operations Manager of Chemical Technologies



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