

Super Q[®]

Strategic Chemistry[®]

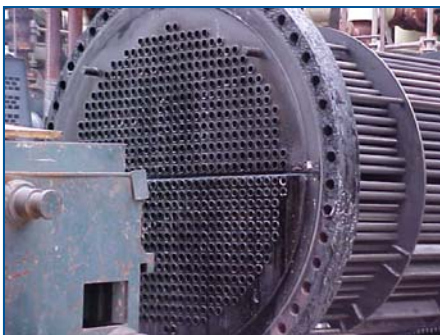
IN-SITU APPLICATIONS - CRUDE PRE-HEAT EXCHANGERS

THE CHALLENGE

The energy cost to process crude oil into useable products is substantial and increasing. In a publication to shareholders, one major oil company stated that more than one-third of its refinery and chemical plant operating expense is used to produce the heat necessary to turn crude oil with little utility into gasoline, heating oil, lubricants and chemical feedstocks. Since the time of the article, the cost of natural gas has more than tripled. Roughly 25% of the energy a refinery consumes is used to preheat crude oil. If they are not maintained, crude preheat exchangers can foul at a rate of 20% - 30% per year, raising the consumption of energy, and/or reducing the feedrate. The cost of fouling for a 100,000 bcd refinery can be more than \$5.2 million. Furthermore, exchanger fouling produces sites for corrosion, and firing the furnace hard enough to overcome fouling necessitates premature decoking.

THE SOLUTION

The Super Q product and Vaporganic[®] process is a safe, fast and inexpensive method to restore heat exchanger duty. In less than 6 hours, exchangers can be cleaned and restored to service, without removing a single nut.



In a recent Gulf States refinery project, crude preheat exchangers were cleaned using Super Q. However, rather than immediately return them to service, the bundles were pulled to replace gaskets. Extracting the bundles, refinery personnel were able to see results of the cleaning.

THE RESULTS

Super Q removed all of the oily contaminant that was found to be caked across the tube bundles during previous extractions.

While the visual results are apparent, measurable results are convincing. After cleaning with Super Q:

- Tube-side flow rate is up 31.7%
- Duty is up 46.3%
- Payback is achieved in less than 2 weeks

Super Q is an effective way to significantly reduce energy cost and increase throughput when integrated into a regular preventive maintenance program.

THE SUPER Q ADVANTAGE

The exchanger cleaned with Super Q was substantially easier to extract and hydroblast than the exchanger that was flushed with cycle-oil and steamed before pulling. This is one more example of how refining professionals are using this proprietary technology to improve operating performance and increase operating margins, while lessening the burden on maintenance crews.

In your daily operations meetings, we encourage you to consider Strategic Chemistry[®]: the timely use of chemistry and planning, engineered to improve operating margins.



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