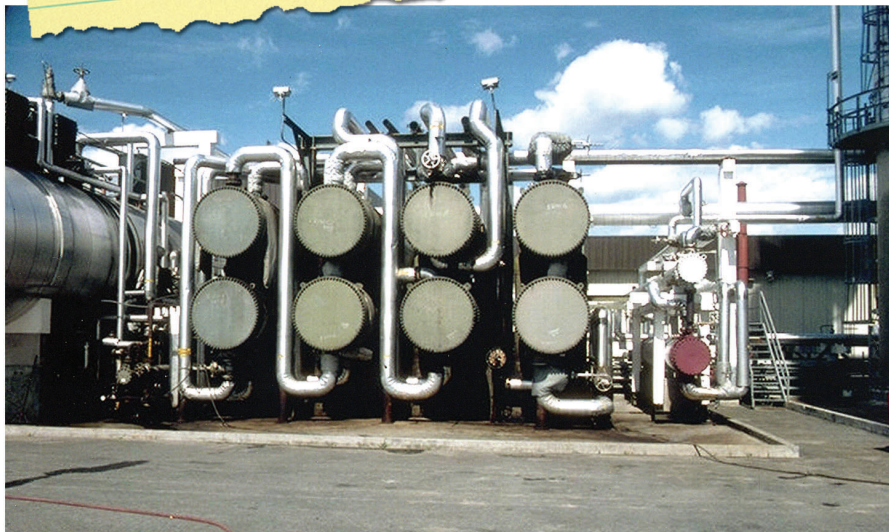


Process Notes



Is Pinch Enough?

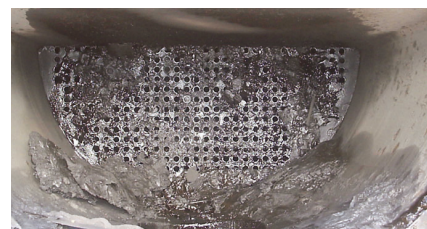
Back in the late 1970's and early 1980's when fuel gas prices were high, energy utilization assumed major importance. A new method of calculating heat exchanger networks was developed. It was called Pinch Technology. Today pinch has been rediscovered by engineers who have access to fast computer simulation models. But as occurs with any older method that is rediscovered by a newer generation, enthusiasm generated by the rediscovery tends to obscure the deficiencies while highlighting only advantages. The fact is that Pinch Technology does have value — but its usefulness has certain limitations which

must be recognized if it is to be truly useful.

Pinch analysis relies heavily on thermodynamics but relegates practical concerns such as crude hydraulics and distillation to secondary importance. But exchangers are part of the larger integrated system. Forgetting this invites the inevitable—a beautiful pinch analysis for a crude unit, for example, can be rendered meaningless by cold desalters, desalter rag layers, fouling and corrosion in exchangers, coking in fired heaters and poor residue stripping and fractionation. Disregarding

these realities can only invite problems, especially with heavy crude oils. The lessons to be learned are that designing grass roots units and when revamping, one should profit from know-how and experience. If a proven design differs from what pinch analysis tells you, weigh your decision carefully. A unit that does not meet processing objectives and is very difficult to start-up is a humbling experience. For revamps it is crucial to know what equipment constraints exist as determined by a comprehensive test run and data analysis. Ultimately the refiner wants something that works, not a theoretically perfect design that operates poorly.

Today fuel prices are sky high. Supplies are tight and because they will remain so until LNG is politically accepted, it is critical that we develop new economies employing state-of-the-art technology. But let us remember that pinch analysis is not new. We have had more than 25 years to evaluate it. Yet it will be useful only when it is used by practical engineers with actual experience with the process being designed.



For a more involved discussion
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