

INTERFACE IN THE FIELD

OPTIMIZE QUENCH SETTLER OPERATION

CUSTOMER PROFILE

INDUSTRY: Petrochemical

LOCATION: Ethylene plant

APPLICATION: Quench settler

ICEBREAKER

“If Magnetrol can reliably provide total level and interface in your quench settler, would this optimize production and increase product quality?”



Quench towers

CHALLENGES

Loss of interface control of caustic water and hydrocarbon in the quench settler means:

- Reduced efficiency of the quench tower, leading to reduced productivity for the plant if the fluid composition negatively changes in the tower and secondary reactions occur (less ethylene produced from the feedstock)
- A long residence time in the settler, which creates a thicker emulsion layer due to the caustic and impacts production
- Water recirculation back into the quench tower may carry over hydrocarbons, reducing productivity and potentially fouling equipment
- As feedstock is increased, more cooling fluids are required, which increases the importance of water recirculation and general quench tower operation

SOLUTION

Magnetrol® level devices allow for reliable control of the quench settler interface to increase ethylene production and product quality

- Fast residence time in the settler is important to production in maintaining desirable product quality and preventing secondary reactions in the tower
- Fast residence time will also assist level measurement to keep a tighter emulsion layer in the settler (less reaction with the caustic)
- Guided wave radar (GWR) can be utilized to measure tighter emulsion layers while magnetostrictive will measure thicker emulsion layers with a float designed to follow the bottom of the emulsion
- Total level and interface can both be measured

RESULTS

Reliable interface measurement leads to efficient quench tower operation

- Optimized production and product quality through the quench tower
- Potential savings in caustic usage with more efficient quench tower operation
- Protection against fouling of equipment and downtime due to hydrocarbon carryover
- A level solution that fits the needs of the specific quench settler operation