

LIFESHIELD non-phosphorus cooling water programs

Breakthrough corrosion protection and scale control

LIFESHIELD™ non-phosphorus corrosion inhibitors were developed by Baker Hughes to provide corrosion protection across a broad spectrum of cooling water conditions while eliminating the phosphorus that leads to exchanger scale formation and environmental compliance challenges. Moreover, LIFESHIELD corrosion inhibitors rapidly passivate your cooling system, eliminating hours and days from time-critical unit startups.

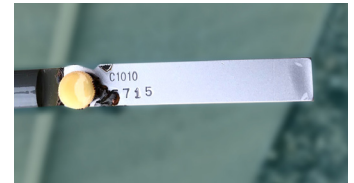
Benefits of LIFESHIELD cooling water programs

- Achieve mild steel corrosion as low as 0.5 MPY over a wide range of operating conditions:
 - Zero hardness
 - Title 22 reuse water
 - High chlorides
 - High chlorine
 - Low pH upsets
- Protect galvanized systems from white rust
- Reduce or eliminate phosphate scale to maintain excellent heat transfer
- Ensure environmental compliance by eliminating a major source of phosphorus
- Passivate cooling systems immediately and more effectively than traditional methods, reducing downtime
- Decrease overall treatment costs by increasing cycles and reducing chemical demand

LIFESHIELD's exceptional corrosion control

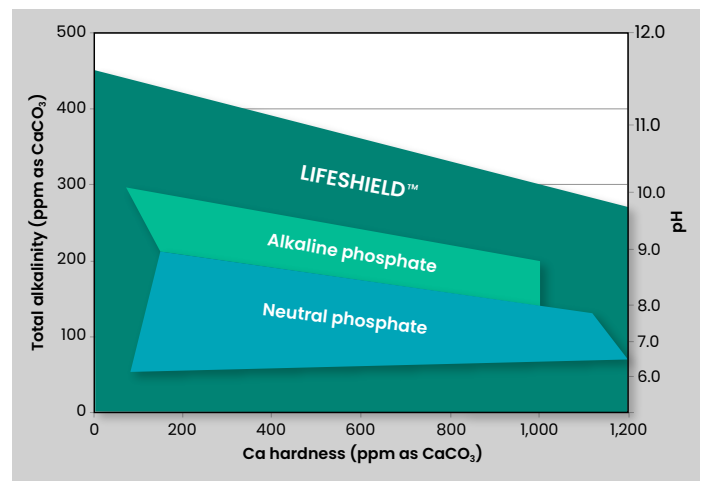


Admiralty coupon after 42 days



Mild steel coupon after 42 days

LIFESHIELD's broad operating window



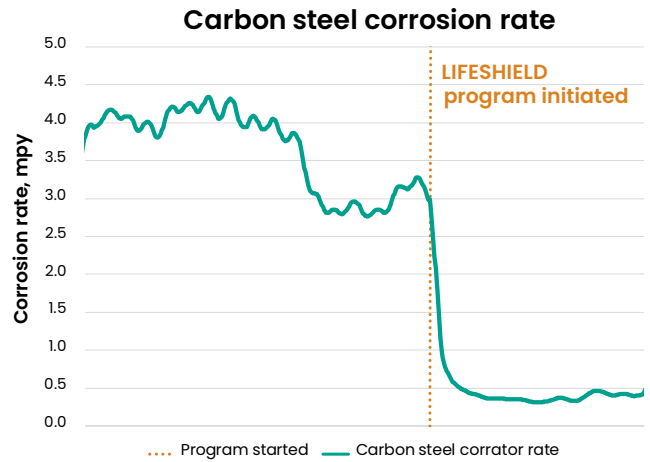
LIFESHIELD non-phosphorus corrosion inhibitors provide improved protection across a much broader range of operating conditions than traditional phosphate-based treatment, including pH as low as 5.



LIFESHIELD corrosion inhibitor reduced corrosion rates by 70%

70% reduction in average mild steel corrosion rates

<0.5 mpy corrosion rate achieved

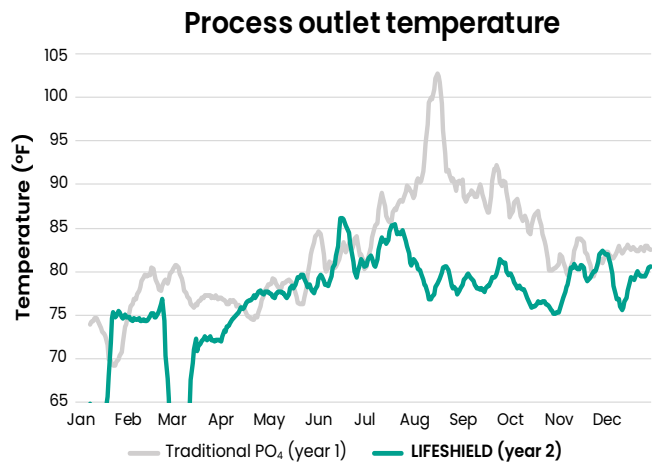


LIFESHIELD program eliminated scale in low-flow heat exchanger

1.5 ft/s average cooling water velocity in critical heat exchanger

15°F improvement in summer process stream

9+ months extension of cooling water exchanger life

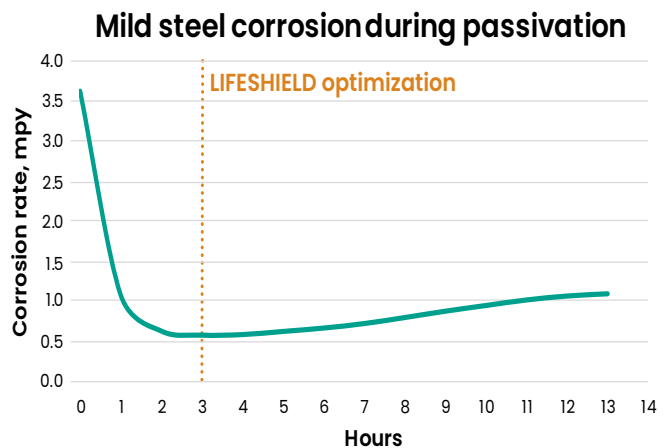


LIFESHIELD passivation enabled early unit startup, \$350K USD savings

1.0 mpy corrosion rate achieved

Rapid passivation of cooling water system

\$350K USD savings from early unit startup



Baker Hughes 

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