

Challenge

Issue

Pitting of carbon steel tanks used for acid and caustic storage during demineralized water treatment had destroyed unprotected tanks within 3 years, requiring tank replacement.

Goals

- Protect new tanks from corrosion with extended life of new tanks to >5 years

Root Cause

As tank level drops, 98% H₂SO₄ in head space drops to <93%. Carbon steel is no longer resistant to corrosion at this level.



Corroded tanks, containing 98% H₂SO₄

Solution

Preparation

- Grit blast to Sa 2.5 with 3 mil (75 µm) angular profile

Application

1. Stripe coat internal weld seam with 1 coat, followed by 2 coats **ARC S4+** in alternating colors with a total DFT of 30-40 mil (750-1000 µm)
2. Apply 2 coats of **ARC S2** with total DFT 20-30 mil (500-750 µm) on the tank exteriors



New tanks coated with ARC S4+ internally and ARC S2 externally

Results

Client Reported

- After 36 months in service, no flaws could be found in the lined surface
- Some ultra-violet-light related chalking on externals. Aliphatic urethane coating applied to address chalking
- After 60 months tanks are still in excellent condition
- After 13 years of service, ARC coatings is preferred protection for these assets



After 13+ years, only chalking and staining is evident