

case study

ChemLINE® 784 Demonstrates Long-Term Performance in 93–98% Sulfuric Acid Rail Service

Sulfuric acid is essential in many industries, including producing numerous compounds. It's primarily used to make phosphoric acid for fertilizer and produce inorganic chemicals, pharmaceuticals, soaps, detergents, textiles, and pulp and paper products. Despite its immense benefits, sulfuric acid poses significant risks for those trying to store and transport it.

Fortunately, a renowned transporter of 93-98% sulfuric acid has discovered a reliable means of transporting this compound without worry. This breakthrough occurred following a chance encounter at a Rail Industry Trade Show. The client expressed the need for a dependable tank lining solution for transporting both fresh and spent sulfuric acid.

The Rail Manager at APC listened attentively and recommended ChemLINE® 784, a low-bake, highly chemical-resistant polymer coating system. With this innovative solution, transporting sulfuric acid has become a hassle-free undertaking.

Following approval from APC's Lab Team, the company arranged for a Pilot Rail Tank Car to be coated with ChemLINE® 784. Red River Coatings completed the lining application in Texarkana, TX, between February 26th and March 3rd, 2018.

Customer Benefit

+ easy repairability
+ minimal discoloration
+ low bake technology
+ increased performance
+ maximum longevity

5 Years Later

After five years in operation, the car underwent a mandatory five-year lining qualification inspection on March 16th, 2023, at Midway Tank Cleaning in Texarkana, TX. During the inspection, APC Inspector Tony Green noted only typical mechanical damage to the lining system, which could be easily fixed using ChemLINE® Repair Kits.

Inspector Green examined the red topcoat ChemLINE® car, taking 206 Dry Film Thickness (DFT) readings. The average DFT reading for the entire car was 13.5 mils, and the coating experienced only a 6.68% loss after five years of service in sulfuric acid.

Despite being exposed to harsh conditions, the red topcoat (requested by the customer) showed minimal discoloration, which is expected in this type of service. After promptly fixing the areas that had suffered mechanical damage, the car was returned to service.

A representative from the transportation company commented on the results of the five-year inspection, saying, "The ChemLINE® Coating is performing exceptionally well in service. **We especially appreciate its low-bake technology, which eliminates the risk of damaging the exterior lining during the curing stage. When we don't need a high-bake, the cost is much lower, which is a significant advantage."**

APC Inspector Green noted that, with proper and consistent maintenance, the car was expected to remain in reliable service for at least another five years. His assessment reinforced the long-term value of maintaining a high-performance lining system rather than replacing it prematurely.

The results were a strong example of ChemLINE® 784's continued performance in rail service. More importantly, they reflected a shift in how customers are evaluating lining decisions. Instead of focusing only on the lowest initial application cost, more operators are looking at the full lifecycle value of a proven, longer-lasting solution that can reduce maintenance demands and support extended asset service life.

STATISTICS	
# Readings	206
Mean	13.504 mils
Maximum	21.70 mils
Minimum	9.70 mils
Standard Deviation (σ)	2.022 mils
Mean + 3σ	19.572 mils
Mean - 3σ	7.437 mils
Coefficient of Variation	15.0%

