

ChemLINE[®]

*High Performance Linings for the
Transportation Industries*



▶ ChemLine® Offers Advanced Corrosion Protection in Transportation Markets



RAIL TANK AND HOPPER CARS

ChemLine® coatings provide superior chemical resistance for tank and hopper cars. The coating's superior chemical resistance to more than 5,000 chemicals provides lessors with the versatility to change cargoes after simple cleaning and decontamination, with assurance of cargo purity.



OTR/TRUCK TANKERS

ChemLine® coatings provide advanced tank coating protection for over-the-road vehicles. The unique crosslinked polymer structure of ChemLine® protects chemical cargoes from permeating the lining, providing corrosion resistance while ensuring product purity.

*Photo above provided courtesy Resist-a-Line, Chicago, IL



BARGE AND INLAND MARINE TANKS

Because ChemLine® coatings have the unique ability to handle more than 5,000 chemicals this covers the full IBC range, hazardous cargoes, food grades, edible oils, fatty acids, black oils, solvents, spent acids, caustics and biodiesel fuels.



TANK (ISO) CONTAINERS

APC offers high performance ChemLine® coatings for tank lining applications including tank containers (ISO tanks), intermediate bulk containers (IBCs), and bulk storage tanks, depending on specific needs of the product tanker container owner or transport manager.

▶ The Transportation Industries require superior linings that can handle a wide range of chemical exposures and temperatures.

High performance linings are crucial to protecting rail tank and hopper cars, tanker trucks, barges, and interbulk tank containers, and maximizing their service life. Many linings are limited in the types of cargoes that they can carry. ChemLine® 784 PC (Plural Component), ChemLine® LTC (Low Temperature Cure), and ChemLine® Anti-Static linings have outstanding chemical resistance to thousands of chemicals. One lining can handle cargoes from concentrated sulfuric acid (98%), to hot crude/crude water mixtures, to food grade cargoes, maximizing the utilization of the assets.



ChemLINE®784 PC *Plural Component*

- ▶ Excellent chemical resistance to more than 5,000 chemicals
- ▶ 98% vol. solids
- ▶ Flexible lining – crack resistant
- ▶ Maximum lining versatility, maximizing asset utilization
- ▶ Thermal shock resistance -40° to 350°F (-40° to 176°C)
- ▶ FDA Compliant (GRAS)
- ▶ BPA free
- ▶ High resistance to permeation (Absorption) – outstanding product purity
- ▶ High abrasion resistance
- ▶ Steam cleanable
- ▶ Single coat application (plural component spray) – 10 to 12 mils



ChemLINE®Anti-Static

- ▶ Excellent chemical resistance to more than 5,000 chemicals
- ▶ 85% vol. solids
- ▶ Static dissipating
- ▶ Maximum lining versatility, maximizing asset utilization
- ▶ Thermal shock resistance -40° to 350°F (-40° to 176°C)
- ▶ Dry heat resistance to 400°F (204°C)
- ▶ BPA free
- ▶ High resistance to permeation (Absorption) – outstanding product purity
- ▶ High abrasion resistance
- ▶ Steam cleanable
- ▶ Airless spray application



ChemLINE®LTC *Low Temperature Cure*

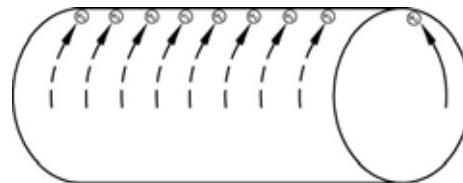
- ▶ Good chemical resistance – PDAs, Bio-fuels, DPPs
- ▶ 85% vol. solids
- ▶ BPA free
- ▶ 30-45 minutes pot life
- ▶ Airless spray application
- ▶ Ambient cure

ChemLine® Coating Success Story

WHO: Solvay USA Inc. is a world-leading producer of essential chemicals including 99+% Sulfuric Acid and other products, used in a range of industries most notably in oil refining for alkylation to increase a refinery's yield of automotive gasoline.

SERVICE: Carrying purified 99+% Sulfuric Acid via rail tankcars to customers, and returning with spent alkylation sulfuric acid that will be regenerated.

HISTORY: Solvay's rail tankcars carrying 99+% Sulfuric Acid and spent Sulfuric Acid have a problem called 'Hydrogen Grooving' which is a corroding of the steel inside the tankcar caused by rising hydrogen gas. Baked phenolic coatings do not work for this demanding service, which can cause tankcars to retire early. According to Solvay, there has always been an inherent corrosion problem with rail tankcars carrying 99+% sulfuric acid and spent alkylation sulfuric acid. Corrosion occurs when sulfuric acid produces hydrogen gas. As the gas moves upward in the railcar (see illustration), it corrodes the steel surface causing a grooving pattern. These unlined tank



Hydrogen Grooving

railcars are not usually retired from service due to uniform corrosion, but from deep hydrogen grooving.

THE SOLUTION: Solvay lined several rail tankcars that had hydrogen grooving, using APC's ChemLine® coating. After a year in service, Solvay's inspection found the coating intact with no further hydrogen grooving seen. This coating has now been in service 3 years with no problems.

"ChemLine® stopped the grooving, thus extending service life, which is very significant."

- Solvay USA Senior Process Technologist



Initial application work on Solvay rail tankcars. Two coats of ChemLine®, a grey base coat followed by a red top coat.

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