

Steel, Concrete Aggregate Hoppers

Category: *Impact & Abrasion Protection*

Customer: West coast based producer of concrete aggregate.

Project: Creating a monolithic, waterproof seal on a large water feature.

Products: Tuff Grip, Primer 251

Problem

The customer was having severe problems with constant corrosion and abrasion on their steel aggregate hoppers. The company used bolted-down plastic liners as protection on their hoppers. The plastic liners provided some marginal life to the steel hoppers; however, they had their problems. Since the liners were bolted in place, aggregate and moisture would get trapped behind the liners allowing for continued corrosion. In turn, the liners began to sag and deform where the aggregate impacted the liner. This would cause them to break off and fail. In the long run, bolted-on plastic liners proved to be a very expensive non-solution.

Solution

The company turned to Rhino Linings® to line their new aggregate hopper as a test. In order to measure the wear on the lining, a decision made to go with a two-layer application. First, the new weigh hopper was sandblasted to a SP5 or SP10 finish. After the sandblasting was completed, the steel finish was then primed with Rhino Linings' Primer 251®.

Once the primer was allowed to dry, the applicator then applied a ¼" (.635 cm) layer of red Rhino Linings TuffGrip, as a wear indicator. Next, the applicator applied ¾" (1.91 cm) black Rhino Linings TuffGrip as the actual wear layer. TuffGrip is tack free and cures in less than one minute. Due to the abrasive nature of this application, the lining was allowed 24 hours total cure time, permitting it to completely cross link and cure, and maximizing its physical properties.

Results

Two years later, an inspection of the lining showed no visible wear to the 1" (2.54 cm) thick Rhino Linings' Tuff Grip application on the company's aggregate hopper. This is due to the exceptional wear characteristics of TuffGrip and the monolithic adhesion of the product as a uniform application to the steel. Traditional ASTM pull tests show TuffGrip to exceed 2,000-psi pull standards.

Since the success of the initial application on its hoppers, the company has utilized Rhino Linings in several other applications, including standard aggregate hoppers and aluminum discharge chutes attached to the company's mix trucks. Applying Rhino Linings' TuffGrip to the discharge chutes prevented adhesion of the concrete to the walls of the chute and provided an easy-to-clean surface.





**Project Completed by an Authorized
Rhino Linings Industrial Applicator**

More About Rhino Linings® Products Used:

TuffGrip® coating provides improved toughness and color stability while retaining the non-skid grip that made Rhino products legendary. It is a two-component, 100% solids (no VOCs, no solvents) exothermic, rapid curing system. Aggressive non-slip performance can be achieved with aggregate integrated into lining.

Primer 251 creates the foundation for excellent adhesion between a variety of substrates and Rhino Linings linings and coatings. An elastomeric polyurethane, it has good flexibility, which aids in withstanding mechanical stresses and protecting from impact. It is especially resistant to acids, hydrolysis and salt spray.

Call 858-450-0441, or visit rhinoliningsindustrial.com to learn more about becoming an authorized Rhino Linings applicator.

Industrial applications are highly specialized and specific consultation and training may be required to perform such applications. Rhino Linings does not provide confined space training and/or expertise in this area. Product MSDS sheets and specific chemical properties should be evaluated before undertaking any application.