

Washington State DOT 8-Year Corrosion Study



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Report from on the Washington State DOT

8 year Corrosion Study

During the week of the 8th of May, PRP Industries visited the Washington State DOT (WS DOT) facilities in Yakima and Pasco to inspect the three trucks involved in the WS DOT long-term Corrosion study.

This is the first time in the eight year test that PRP Industries had the opportunity to inspect the vehicles.

There was a significant difference in the performance of the systems tested.

The three trucks involved were 33, 34 and 35. 33 and 35 tipping bodies had been painted with a leading transport industry 2 component epoxy and 2 component urethane paint system. The body on truck 34 was protected utilizing PRP Metal Polymerization process. The head board of truck 34 had been painted with the same paint system as trucks 33 and 35. The idea behind doing this was to have a control mechanism for a side-by-side comparison of the different systems.

All three trucks were very close in mileage truck 34 had traveled an additional 8000 miles approximately 6% further than truck 35.

WS DOT operational plan calls for a life of 15 years for these vehicles. Truck 33 in its eighth year had already been placed on the disposal list and was being offered for sale.

Trucks 34 and 35 have been operated out of the Pascoe facility since 2008 and spend the winters keeping the mountain highway passes open in the region.

During the winter months trucks are loaded with salt and fitted with calcium chloride tanks and wetting systems to keep the roads open.

There was a marked difference in the condition of the three vehicles.

Truck 33 parked in the disposal yard at Yakima.



Truck 34 at the Pascoe facility.



Truck 35 at the Pascoe facility.



NOTE: Tarp hooks were added to all of the bodies by WS DOT after the truck were in service. In some of the photos you will see a difference in color around these areas.

Close-up of the chloride wetting system on trucks 33, 34 and 35.



Close-up of the driver's side of trucks 33, 34 and 35.



Unit 34. The front gate and the ladder were painted utilizing the WS DOT standard paint system



The WS DOT had conducted this trial independently of any of the suppliers. The desire was to achieve actionable conclusions from the testing. The results from the testing seem obvious truck 34's condition would indicate that it will achieve the 15 years of operational life that the WS DOT is seeking and should still retain a good resale value at the time of disposal.

The WSDOT is convinced that COR SOL® corrosion solution is the answer to solving many of their fleet corrosion problems and is currently seeking bids from suppliers utilizing PRP's Metal Polymerization® process.

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7.5.1 Recent progress and advancements

7.5.7.1 Washington State Department of Transportation (WSDOT)

PRP Industries entered into a corrosion test study with WSDOT. PRP Industries will perform a series of field studies using WSDOT plow trucks to identify cost effective solutions to corrosion problems on these vehicles (WSDOT & PRP, 2014). This study will help to identify solutions to corrosion on vehicle frames, fuel tanks, wheels, air valves, dump bodies and various other components. The test will be conducted on new trucks and components going into service and examples are shown in Figure 55, Figure 56, and Figure 57. The two trucks went into service December 2008.



Figure 55. a & b) A new body treated with PRP CORSOL, then top coated with PRP Acrylic Urethane, c) a dump body after 5 years of use on a salt spreader truck (WSDOT & PRP, 2014).



Figure 56. Brake valves and glad hand treated with CORSOL prior to installation (WSDOT & PRP, 2014).

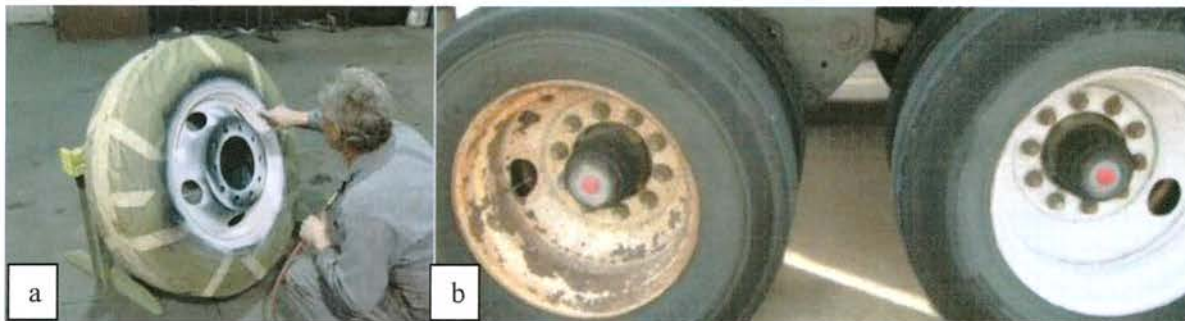


Figure 57. a) A new wheel is stripped of its coating, treated with CORSOL, then top coated with PRP Hybrid Urethane, b) trailer wheels after 6 years (left) and in field success of COROSOL after 6 years (right) (Courtesy of PRP industries; WSDOT & PRP, 2014).

(Inserted by PRP)

Updated photos supplied by WDOT from 2016 of the Trucks 34 with the CORSOL® corrosion solution and 35 standard automotive paint system.



Truck 34



Truck 35

7.5.7.1 Gas Cylinders

Gas cylinders that were being sent offshore were corroding within a year. The corrosion caused pitting of the steel, which reduced the service life of the gas cylinders. A Corsol Metal Treatment System was applied to mitigate the corrosion problem (Figure 60). This same treatment technique has been used to successfully protect the fuel tanks (PRP, 2014).



Figure 60. The standard cylinder group on top compared to the PRP treated cylinders on the bottom (PRP, 2014).



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