

Cerakote™ V-171 Turbine Coat as a Thermal Barrier for a Ford Diesel 6.0 L Powerstroke Engine

Cerakote™ high-temperature coatings are durable, heat-resistant coatings characterized by excellent long-term performance. Of these coatings, V-171 Turbine Coat is designed to function as a thermal barrier for high-temperature exhaust systems. Thermal barriers play a significant role in a variety of industries, by reducing the amount of heat escaping to the surrounding environment from the exhaust system. Reducing the temperature under the hood results in decreased fuel temperatures, increased horsepower, and improves the service life of various parts. This study details the advantage of using Cerakote™ V-171 Turbine Coat as a thermal barrier coating for Ford Diesel 6.0 L Powerstroke Engines. The testing results are detailed in figure 1. Changes in air temperature were recorded and used to determine the efficacy of the thermal barrier coating as compared to an uncoated section of the exhaust system. The temperature change between the exhaust gas and the skin was recorded, and these results are shown below in figure 1. The average exhaust gas temperature was 1690°F. Coating the system with Cerakote™ V-171 Turbine Coat contributed to a temperature decrease of 776°F with respect to the exhaust gas temperature. On average, the ceramic coating contributes to a reduction in surface temperature of 46% when compared to the exhaust gas.

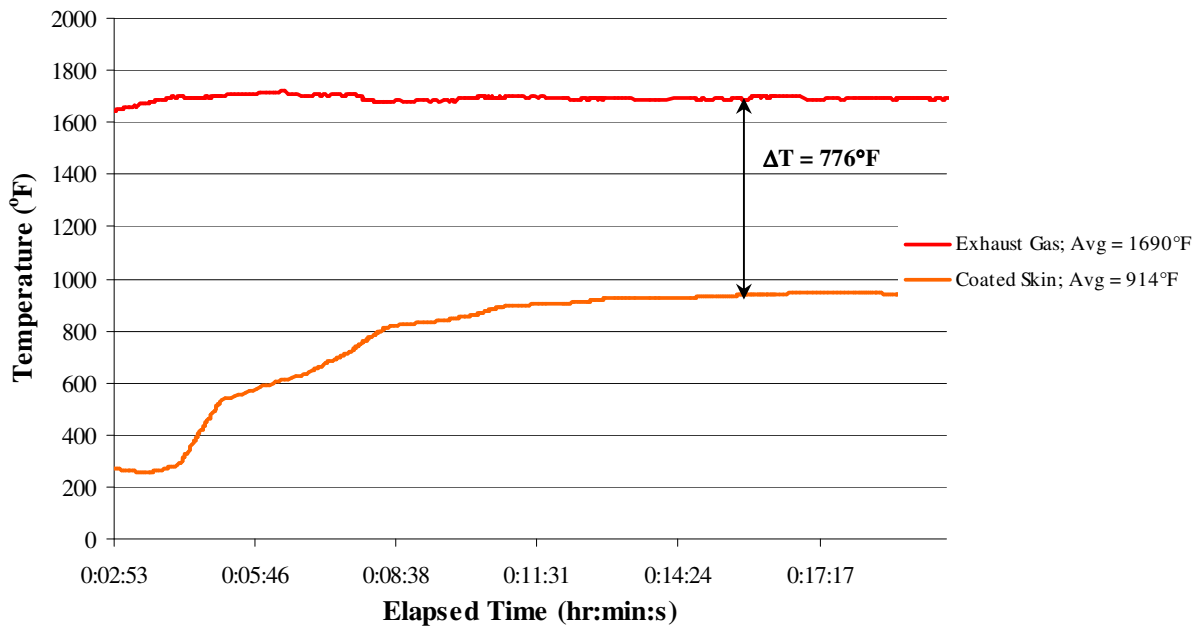


Figure 1. The efficacy of Cerakote™ V-171 Turbine Coat as a thermal barrier coating was analyzed by comparing coated and uncoated sections of a Ford Diesel 6.0 L Powerstroke engine exhaust. Use of the thermal barrier coating contributed to a 46% reduction in temperature when comparing the skin temperature to that of the exhaust gas.

*Testing provided by Advanced Testing and Engineering; Taylor, MI.