

Cerakote™ C-7400 Black Velvet SC as a Thermal Barrier for Class 8 Truck Exhaust Systems

Cerakote™ high-temperature coatings are durable, heat-resistant coatings characterized by excellent long-term performance. These products provide corrosion and wear resistance, reduce part-metal oxidation, and act as a thermal barrier. Cerakote™ high-temperature coatings are available in a variety of colors. Of these, C-7400 Black Velvet SC is the most popular due to its satin finish (25 gloss units at 60°) and deep jet black color. C-7400 Black Velvet SC is most commonly used on headers and exhaust components for OEM and aftermarket motorcycles and passenger vehicles. Due to growing interest in the heavy-duty truck market, C-7400 Black Velvet SC was tested on a Class 8 truck exhaust system. The experimental setup for this test is shown below in figure 1. For this test the coated exhaust was cycled through a series of temperature changes representative of class 8 exhaust temperatures as seen during typical use. The exhaust gas was initially heated to 1050°F and maintained at that temperature for duration of 30 minutes. The average temperature drop between the exhaust gas and skin temperature was 400°F. Next, the exhaust gas temperature was elevated to 1540°F and held constant for 30 minutes. At this point, the temperature drop between the skin and exhaust gas was recorded as 800°F. At exhaust gas temperatures of 1050°F and 1540°F, the Cerakote™ C-7400 Black Velvet SC contributed to temperature drops of 38% and 52%, respectively. After completing the test, the coating was analyzed to confirm that no changes in gloss, color, or adhesion occurred. Overall, Cerakote™ C-7400 Black Velvet SC exhibited no signs of degradation at elevated temperatures and performed well as a thermal barrier.



Figure 1. A class 8 exhaust stack was coated with Cerakote™ C-7400 SC and tested to determine the durability, performance, and thermal barrier capabilities at elevated temperatures.

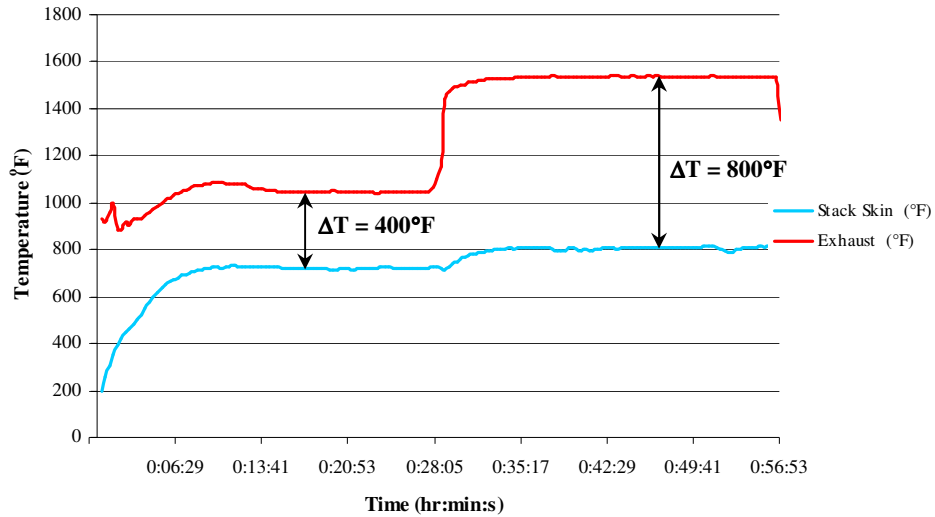


Figure 2. The temperature change of the exhaust gas was compared to that of the stack skin at two temperatures, 1050°F and 1540°F. The change in temperature across the surface of the coated pipe was 400°F and 800°F at each of these respective exhaust gas temperatures.