PERFORMANCE OF JOHNSON MATTHEY CRT ä PARTICLE FILTER SYSTEM FOR EMISSION CONTROL OF HEAVY DUTY DIESEL ENGINES

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Particulate emission from diesel engines is one of the most important pollutants in urban areas. With growing concerns over health effects associated with diesel "soot", the reduction of diesel particulate emissions is increasingly becoming a major requirement in urban areas.

Johnson Matthey's Continuously Regenerating Technology (CRT™) filter system is a highly effective technology for diesel PM reduction. The CRT system provides a unique and successful solution to the filter regeneration issue, by using NO_2 to combust engine soot under the diesel engine operating temperature without any external heating. The overall system consists of a platinum metal based oxidation catalyst upstream of the particulate filter. The catalyst oxidizes a portion of the exhaust NOx into NO_2, which carries out continuous combustion of accumulated soot trapped by the filter, at temperatures above 250^{o}C. In addition, the system also eliminates most of (>90%) the CO and HC in the diesel exhaust.

The CRT filter system has been widely used in Europe over the past 6 years. Since 1999, several demonstration and field trial programs have started to evaluate the performance and durability of the CRT system under US operational conditions. These include CRT applications on a wide variety of diesel vehicles such as transit buses, on-highway trucks, trash trucks, school buses, construction trucks and off-road construction equipment. Some of these have successfully concluded (NY City, ARCO), after obtaining over one year of satisfactory durability data, while others are continuing.