

The Continuously Regenerating Trap[®]

Taking the dirt out of
diesel exhaust



Johnson Matthey

The Problem

All diesel engines emit gaseous pollutants as well as particulate matter (PM) made up of hydrocarbons and large numbers of fine soot (carbon) particles.

The diesel engines of buses and trucks are a major source of these pollutants in urban areas.

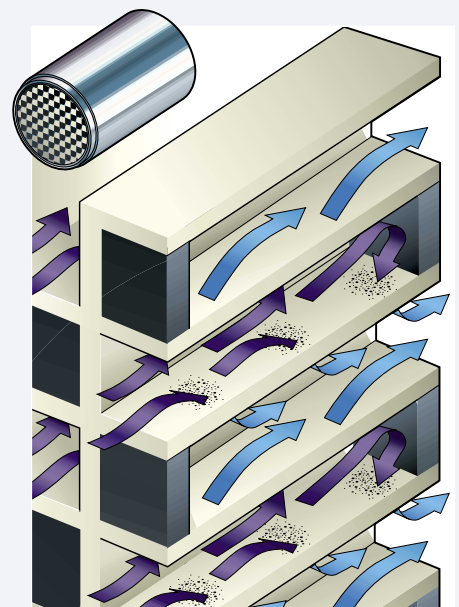


The Solution

Catalyst technology can effectively convert over 90 per cent of hydrocarbons (HC) and carbon monoxide (CO) from diesel engine exhaust into less harmful carbon dioxide (CO₂) and water vapour.

However, in order to tackle the particulate pollution, it is necessary to employ a filter to trap the soot particles and a regeneration technique to remove the soot to prevent the filter from blocking.

Johnson Matthey's innovative solution is the Continuously Regenerating Trap, or CRT®.



Benefits of CRT®

Using the CRT®, both the mass of particulate and number of particles are cut by more than 90 per cent, whilst HC and CO emissions are virtually eliminated.

The exceptional performance of the CRT® has been demonstrated both in laboratory testing and real-world operation.

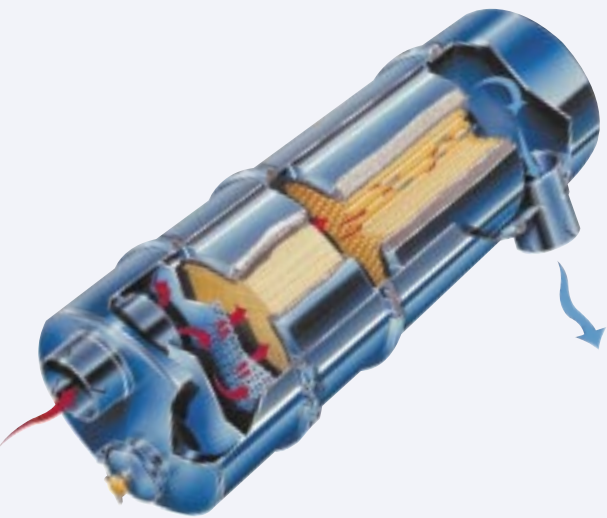
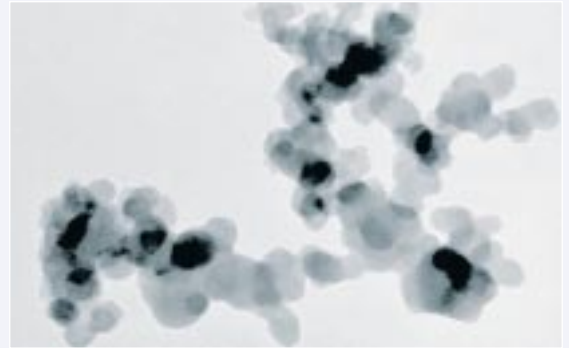
A comprehensive range of CRT® exhaust systems is available for retrofitting to trucks and buses.

The durability of the CRT® is proven, with units in service since 1995.



The soot particles from diesel exhaust can be breathed deep into the lungs with adverse health effects, while the associated hydrocarbons pose a cancer risk.

Around the world, regulators are implementing policies to improve air quality. Many of these policies include measures to curb PM emissions from city centre vehicles like buses and trucks.



The Continuously Regenerating Trap

The CRT[®] employs an oxidation catalyst in front of a filter.

As well as cutting harmful HC and CO emissions, this catalyst converts nitrogen monoxide (NO) from the diesel exhaust into nitrogen dioxide (NO₂).

The PM travels through the catalyst and into the filter where it is trapped.

The NO₂ then helps burn off the soot particles trapped in the filter at temperatures typical of diesel exhaust.

This low temperature soot combustion enables a continuous cleaning or 'regeneration' of the filter.



The CRT[®] offers a practical means by which vehicles can comply with national and local environmental regulations, including the access criteria of Low Emission Zones.

The Johnson Matthey team that developed the CRT[®] was awarded the Royal Academy of Engineering MacRobert Award 2000, in recognition of an outstanding innovation of benefit to society.





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