

Diesel Emission Retrofits

EPA established new stringent standards for model year 2007 and later heavy-duty diesel engines. The regulations consist of two components: new emission standards and new diesel fuel regulations. The standards were phased into the sales of 2007 and later engines. Fleets with pre-2007 diesel vehicles can voluntarily reduce emissions by retrofitting vehicles with emission control devices.

Diesel emission retrofit devices are designed to minimize particulate matter (PM) smaller than 2.5 microns (PM_{2.5}), hydrocarbons (HC), carbon dioxide (CO₂), and carbon monoxide (CO) from diesel engine exhaust. The pollutant reduction is achieved by capturing and/or destroying these particles. These devices provide immediate and significant pollution reductions with no new infrastructure requirements.

They are a cost effective, voluntary method to improve an existing fleet's emissions.

Approximately one third of diesel emissions are a result of on-road diesel vehicles. Two highly effective diesel retrofit devices capable of reducing emissions are diesel oxidation catalysts (DOCs) and closed crankcase ventilation systems (CCVs).

Retrofit Quick Facts:

- Diesel exhaust is a major source of PM_{2.5} emissions in urban areas.
- More than 100 million Americans live in areas where PM_{2.5} levels exceed the EPA's standard. Exposure to high levels of fine particulates poses a significant health risk to the public.
- A DOC is a porous honeycomb-like device that is covered with materials that catalyze a chemical process in order to break down pollutants in the exhaust stream into less harmful compounds. DOCs can be used with regular diesel fuel.
- A CCV is designed to capture and return the crankcase gases that have leaked through the engine piston rings. These crankcase emissions can be substantial. A CCV is used to control the flow of gases and return the emissions to the engine for combustion. This effectively prevents the crankcase emissions from entering the atmosphere.
- Most DOC retrofits come with a 100,000 – 150,000 mile warranty and can last between 7 and 15 years.

Each of these diesel retrofit technologies developed by the manufacturer must go through an independent verification of their effectiveness. This is done by either EPA or the California Air Resources Board (CARB). The purpose of this verification is to confirm that they are effective in reducing emissions such as PM, Nitrogen Oxides (NO_x), and CO. Additionally, testing is performed to verify how long these technologies can continue to reduce emissions. This determines how effective each emission control technology is in reducing emissions for an extended period of time.

Contact us:

If you have further questions, please contact the Oklahoma Department of Environmental Quality's Air Quality Division at (405) 702-4100.

