



# CLEAN AIR FACTS

2020 North 14th Street \* Suite 220 \* Arlington, VA 22201 \* (202) 296-4797 \* [www.meca.org](http://www.meca.org) \* [www.dieseleretrofit.org](http://www.dieseleretrofit.org)

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## Diesel Particulate Filters

### *Myths and Facts*

**Myth 1: All DPFs rely on high temperatures and specific duty-cycles to effectively reduce PM emissions.**

- **Fact:** Diesel particulate filters (DPFs) are emission control devices that physically trap particulate matter (PM) in the exhaust stream and provide non-stop filtering regardless of the engine duty cycle or exhaust temperature. (In comparison, diesel oxidation catalysts (DOCs) are flow-through devices that reduce PM through a catalytic reaction when temperatures are above a certain threshold.) While passive DPF systems require certain exhaust temperatures to regenerate (or “self clean”), DPFs with active regeneration do not rely on engine exhaust temperatures to regenerate. DPFs with active regeneration use fuel burners, catalytic burners, or plug-in electric power to heat and combust collected particulate matter. These systems are ideally suited for colder applications running lower miles and/or having significant periods of idle. As of June 2011, there are 10 DPFs verified by ARB or EPA with active regeneration (ARB: [www.arb.ca.gov/diesel/verdev/vt/cvt.htm](http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm), EPA: [epa.gov/cleandiesel/verification/verif-list.htm](http://epa.gov/cleandiesel/verification/verif-list.htm)).

**Myth 2: DPFs are unreliable and maintenance intensive.**

- **Fact:** ARB and EPA have instituted rigorous programs to “verify” emissions performance and product reliability before they enter the marketplace. All manufacturers must meet these stringent performance, reliability, and durability standards to become ARB- or EPA-verified.
- **Fact:** Because DPFs are so effective at capturing diesel PM emissions, they require de-ashing or cleaning every 12-18 months to remove non-combustible materials that have accumulated during normal operation. This de-ashing process is easily integrated into normal vehicle maintenance. Unfortunately, poor engine maintenance practices can lead to increased soot production and engine oil consumption resulting in more frequent DPF regeneration and de-ashing.

**Myth 3: DPFs have limited on-road and off-road application.**

- **Fact:** For over a decade, DPFs have been successfully used to retrofit tens of thousands of in-use on-road diesel vehicles such as transit buses, school buses, refuse trucks, delivery trucks, intermodal trucks, utility trucks, municipal vehicles, recycling trucks, shuttle buses, and more.
- **Fact:** For over a decade, DPFs have been successfully used to retrofit thousands of in-use off-road diesel machines such as wheel loaders, cranes, excavators, graders, scrapers, bulldozers, drills, forklifts, pavers, compactors, planers, grinders, rock crushers, and more.
- **Fact:** Since 2007, over two million new diesel-powered light-, medium-, and heavy-duty trucks manufactured in the U.S. have been built with DPF emission control systems.

**Myth 4: DPFs aren't effective – only new engines can meet low PM emission levels.**

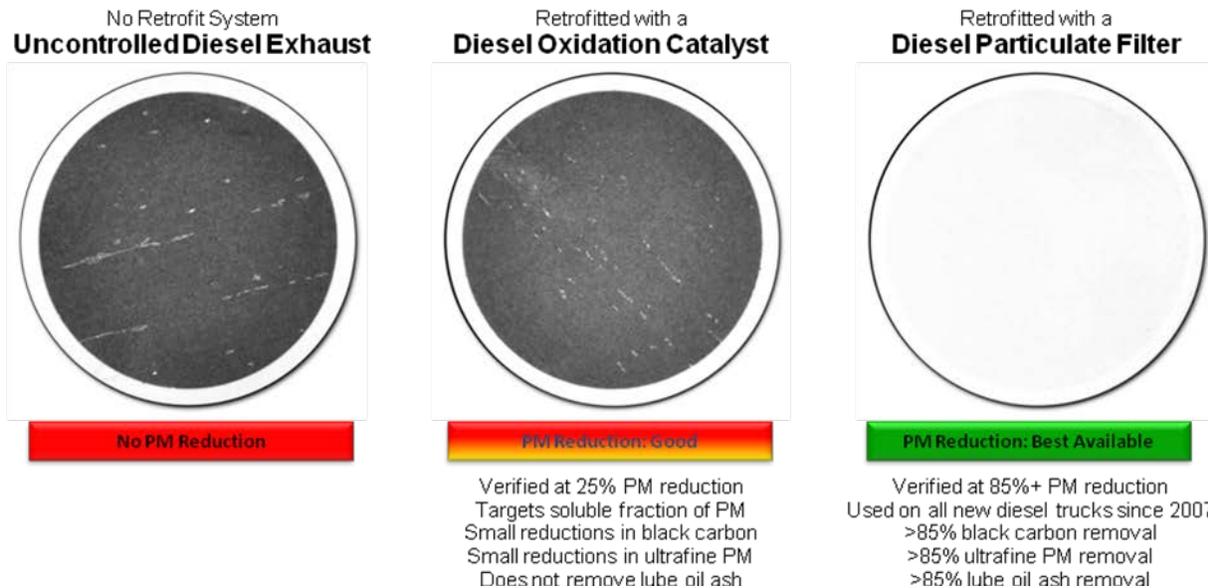
- **Fact:** A DPF retrofit can bring an older engine (1960-2006) to 2007/2010 engine PM emissions levels. DPF retrofits are less costly than purchasing new vehicles or machines.
- **Fact:** U.S. truck manufacturers have used DPF technology to meet EPA's stringent 2007/2010 PM emission requirements.

**Myth 5: DPFs are experimental – only a few companies have verified DPF products.**

- **Fact:** As of June 2011, more than 10 different manufacturers have received EPA and/or ARB verification to the highest level of PM reduction (85%+) for 29 DPF products (passive and active DPFs). (In comparison, there are currently 18 verified DOC products.)
- **Fact:** DPFs are verified with broad coverage on engines built between 1960 and 2006.

**Comparison of Diesel Retrofit Technologies**

The images below are actual PM collection samples from an ARB- and EPA-approved, CFR-compliant engine testing laboratory used to collect and measure diesel PM emissions. Note that both catalyst-based DPFs and DOCs provide high levels of reductions in diesel air toxics and diesel exhaust odor.



Test Conditions: Test Cycle: UDDS (Urban Dynamometer Driving Cycle); Test Distance: 5.5 miles over 17 minutes; Fuel Consumed: 1.1 gallons; Test Vehicle: Heavy-duty truck with a 370 hp Cummins engine (1999 model year).