CAMPAIGN FOR CLEAN DIESEL

RESPIRATORY HEALTH ASSOCIATION of Metropolitan Chicago

# RETROFITTING EXISTING DIESEL ENGINES

## EQUIPMENT

**Diesel Particulate Filters (DPFs)** physically trap particles in the engine exhaust before they leave the tailpipe and are installed in the engine exhaust system. Particles trapped in the filter are oxidized to carbon dioxide and water when exhaust gases reach the manufacturer-recommended temperature. All emission control technologies achieve the best reductions when used with Ultra Low Sulfur Diesel fuel (ULSD), and only ULSD can be used with filters. When used with ULSD, DPFs achieve at least an 85% reduction in soot emissions.

**Diesel Oxidation Catalysts (DOCs)** use a chemical process to break down pollutants in the exhaust stream into less harmful components. A typical DOC is a stainless steel canister installed in the exhaust system. As exhaust gases pass through a DOC's honeycomb structure, pollutants and particulate matter are chemically oxidized to harmless gases. DOCs are less effective than DPFs, achieving only a 25-50% soot emission reduction.

## IMPACTS AND BENEFITS

Each year, diesel engines add millions of tons of particulate matter (soot) and other toxins to the air. These pollutants cause adverse health effects such as lung damage, heart and respiratory problems, and cancer. The US Environmental Protection Agency (US EPA) estimates that retrofitting 10,000 engines would eliminate roughly 15,000 tons of harmful pollution each year.

| Emission Control Technology | Engine | Reduction of Emissions | Cost (dependent on volume of purchase) | Installation Time |
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| **Diesel Oxidation Catalyst (DOC)** | New or Used Diesel | Particulate Matter 20-50% Hydrocarbons 70% Carbon Monoxide 90% | $1,000 - $2,500 | 1 to 3 hours |
| **Diesel Particulate Filter (DPF)** | New or Used Diesel; 1995 or newer models | Particulate Matter 90% Hydrocarbons 90% Carbon Monoxide 90% | $5,000 - $7,000 | 4 to 6 hours |
| **Ultra Low Sulfur Diesel (ULSD)** | New or Used Diesel | Reduces PM by up to 10% | Required to be available nationwide. Cost varies. | No extra tank cleaning required. Simply use up old fuel in tank and fill with ULSD. |

**For more information visit www.lungchicago.org or call 312-243-2000.**