



TECHNICAL BULLETIN

Penrite DPF Cleaner?

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ENVIRO+

What is Enviro+ DPF Cleaner?

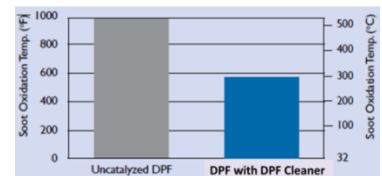
Enviro+ DPF Cleaner is a Bi-metallic diesel fuel additive that when added to the fuel of a Diesel Particulate Filter equipped vehicle, will clean and maintain the DPF as well as provide other significant benefits.

How does DPF Cleaner work?

- 1) **Enviro+ DPF Cleaner's** detergents clean deposit build up on the injectors ensuring an even spray pattern & optimised fuel flow.
- 2) **Enviro+ The** combustion chamber surfaces are conditioned with active metals to promote a uniform burn throughout the combustion cycle. This allows a faster burn at lower temperatures and also improves engine efficiency.
- 3) **Enviro+ DPF Cleaner** improves combustion efficiency of the fuel and reduces engine particulate matter by up to 20% with ULSD (*Ultra Low Sulphur Diesel*) and 30% with B20/ULSD (*Bio / Ultra Low Sulphur Diesel*), so there is less soot accumulation in the exhaust components ie Turbo Charger, EGR Systems & DPF.
- 4) Each soot particle emitted from the engine enters the exhaust system coated with our patented bimetallic formulation including two active metals. The active metals work synergistically to oxidize the soot particles and to regenerate and maintain a catalyst coating on the Diesel Particulate Filter with regular use.
- 5) **Enviro+ DPF Cleaner** initiates passive regeneration (soot oxidation) at lower temperatures and more complete regeneration replacing the need to remove and clean the DPF or replace it completely from high soot load.
- 6) **Enviro+ DPF Cleaner** lowers soot oxidation temperature as shown in chart, allowing regeneration at lower temperatures preventing run-away regeneration which can otherwise damage the integrity of the substrate and shorten the life of the DPF.

What are the benefits of using DPF Cleaner?

- It can clean a blocked DPF at 1st Stage Blockage (Engine Light)
- It extends oil life by lowering soot levels.
- Improves fuel economy by up to 8% (or more depending on engine and application)
- Cleans injectors and fuel system.
- Improves engine power & efficiency
- Restores lost power from blocked exhaust catalysts
- Extends exhaust system, turbo charger, EGR and catalyst life.
- Saves on expensive repairs (common cost of DPF exceeds \$6000 + fitting!)
- Lowers engine emissions.
- Reduces black smoke & soot (diesel particulate matter)



What is Bi-Metallic?

Enviro+ DPF Cleaner has two active catalysts – Cerium & Platinum. Cerium is an a oxidation catalyst that improves combustion, burns soot and increases hydrocarbon combustion. Platinum coats the combustion chamber and promotes a more uniform combustion as well as regenerating the DPF wall and catalysts with precious metal.

Why do DPF's get blocked?

DPF's get blocked when soot created from the combustion process cannot be burnt off during a regeneration process by the vehicle's DPF. This can happen for a number of reasons. The most common is that the vehicle is does short trips and does not get consistent running to allow the filter to properly regenerate. A good consistent speed run and the **Enviro+ DPF Cleaner** can clear a "Stage 1" blockage (This is where are warning light displays that the filter is approaching full).

What is different about Penrite Enviro+ DPF Cleaner?

Penrite Enviro+ DPF Cleaner is the only Bi-metallic catalyst product in the aftermarket in Australia that uses Cerium & Platinum to as part of the cleaning and regenerative process.

Why is it called "ENVIRO+ DPF Cleaner"?

This product is designed to work in vehicles that have a Diesel Particulate Filter as are our Enviro+ engine oils. It makes sense to make them part of the same family as they work hand in hand with one another.

How often should I use it?

We recommend using every 5000 km's to maintain DPF catalysts and prevent runaway regeneration.

What else is special about this product?

Enviro+ DPF Cleaner technology is protected by over 200 world-wide patents. It also carries the Penrite brand name meaning it is a premium performance product designed to provide the ultimate in performance and reliability.

Industry Specifications

European and EPA registered
VERT-approved with DPF
MSHA-accepted



See real life test results next page

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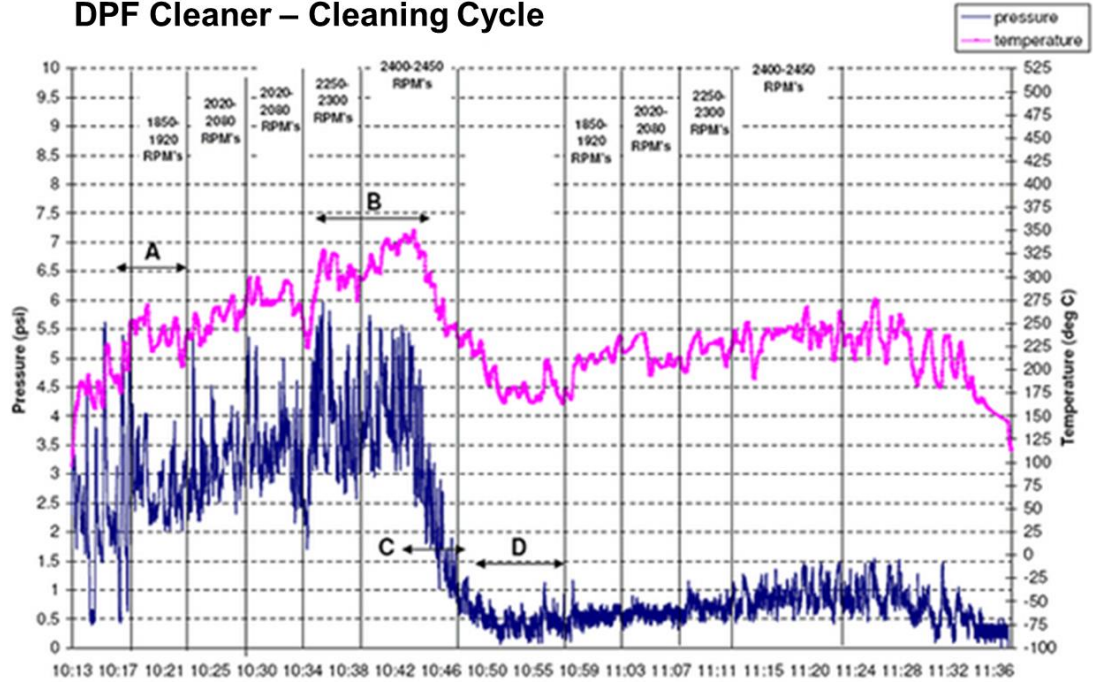


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Real life example. Enviro+ DPF Cleaner test results:

- 1) Passive and controlled regeneration are made possible at temperatures in the low 300°C range, easily achieved by the bus operators in their regular route, by either driving the bus at highway speeds or by loading the engine on uphill grades for 5-10 minutes. This activity will either dramatically reduce or eliminate cleaning requirements.
- 2) Controlled regeneration without fear of run-away heat production, which might otherwise damage filter integrity or create tailpipe flames.
- 3) Complete regeneration of even dry soot from the EGR engines dropped backpressure from 5 psi to 0.5 psi.
- 4) Increases the rate and completeness of combustion, thereby lowering the amount of engine-out soot by as much as 25%. This helped maintain a cleaner DPF longer, based on decreased loading; even five months after passive regeneration, backpressure did not exceed 3 psi.
- 5) More complete combustion and less backpressure also improved fuel economy (although specific amounts were not measured in the course of this program).

DPF Cleaner – Cleaning Cycle



- A. Typical urban driving with exhaust temperatures ranging between 225 - 300° C
- B. Driving for 15 min at highway speeds increased temperatures to the 300 - 350° C range and initiated passive low-temperature regeneration
- C. Over the course of regeneration, backpressure dropped from a high of 4.5-5.5 psi to 0.5 psi
- D. Stable backpressure between 0.5-1.0 psi; after five months of operation, backpressure on the Platinum Plus-treated system remained below 3 psi

Penrite recommend “The Right Oil for the Right Application”

[Click Here](#) to visit the Penrite Recommendation Guide, which will ensure you receive the correct oil for your vehicle



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