

METCLEAN TECHNICAL NOTE

CLEANING **WITHOUT** CHEMICALS

How METClean's water-and-air cleaning process removes soot and ash from a diesel particulate filter using heated water, a controlled flow rate and timed air bursts, and when we do recommend a cleaning fluid.

HEATED WATER

CONTROLLED FLOW

AIR CAVITATION

NO CHEMICAL RESIDUE

THE QUESTION WE WERE ASKED

How can a DPF be cleaned of soot and ash properly if no chemicals are used?

01

UNDERSTANDING THE BLOCKAGE

WHAT IS INSIDE A BLOCKED DPF

A diesel particulate filter is a ceramic honeycomb. Its channels are blocked at alternate ends, so exhaust gas is forced through the porous walls and the particles are left behind. Over time two very different deposits build up.

SOOT

Fine carbon particles from combustion. Soot sits as a layer on the inlet channel walls and in the surface pores. On the road it is meant to be burnt off during regeneration, but short journeys, faults and failed regens let it build up faster than it can be cleared.

ASH

The non-combustible residue left from engine oil additives. Ash cannot be burnt away by any regeneration, so it collects for the life of the filter and packs down into the closed ends of the inlet channels, steadily reducing the usable filter area.

THE KEY POINT

Dry soot and ash are particles held in place physically, trapped in pores and packed into channels. They are not chemically bonded to the ceramic. That means the right combination of heat, water movement and mechanical agitation can release them and carry them out, without a chemical needed to dissolve anything.

02

THE METCLEAN PROCESS

THREE THINGS WORKING TOGETHER

The METClean process does not rely on one single force. It balances three variables, each set correctly for the job, so that together they do the work a chemical would otherwise be asked to do.

01**HEATED WATER**

Warm water penetrates the fine pores of the ceramic more easily than cold water and softens and loosens compacted deposits, so they let go of the channel walls.

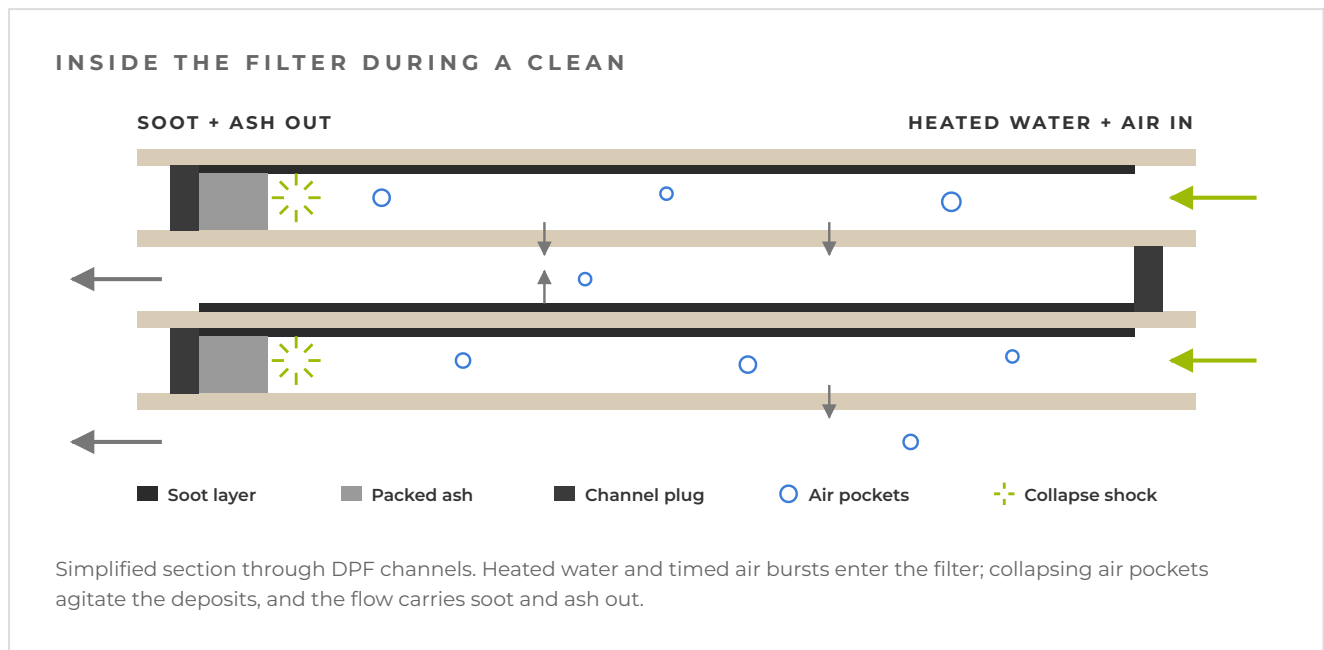
02**THE RIGHT FLOW RATE**

Enough flow to carry the released soot and ash all the way out of the channels, without the excessive force that could stress the substrate. More is not better; correct is better.

03**AIR BURSTS**

Timed bursts of air are introduced into the water. The correct amount of air, at the right intervals, is what allows the air to cavitate inside the filter.

Water heating, flow and air settings differ between METClean models. Follow the operating instructions and training for your machine.



HOW THE AIR CAVITATION WORKS

When air is pulsed into the moving heated water, it forms pockets and bubbles that are driven through the channels. As these pockets rapidly expand and collapse, each one releases a small, sharp pressure shock and a burst of turbulence right at the channel wall. Repeated thousands of times through the cleaning cycle, this acts like a scrubbing action at microscopic scale, reaching into the pores and into the packed ash at the channel ends where a steady flow of water alone would simply pass over the top.

Getting the balance right is what makes it work. Too little air and there is not enough agitation to release the deposits. Too much and the air simply pushes the water aside instead of working with it. METClean machines that use this process are set up to deliver the correct ratio of air to water flow at the correct temperature.

WHY WE AVOID CHEMICALS WHERE THEY ARE NOT NEEDED

- **Nothing left behind.** Water and air leave no chemical residue in the substrate to be carried back onto the vehicle.
- **Gentle on the filter.** There is no aggressive chemical in contact with the ceramic or its catalytic coating.
- **Lower running costs.** No consumable to buy for every routine soot and ash clean.
- **Simpler, safer workshop.** Less handling of chemicals by staff. Waste water still contains soot and ash and should be disposed of in line with local regulations.

03 THE EXCEPTION WHEN WE RECOMMEND A CLEANING FLUID

OIL OR SLUDGE IN THE FILTER: TALK TO US BEFORE CLEANING

Oil binds soot into a sticky, water-repellent sludge. Water and air alone cannot break that bond, and the sludge will stay in the channels however long the cycle runs. If there is oil or sludge in the DPF, contact our technical team: METClean may advise using a cleaning fluid during the clean.

WHAT YOU SEE	WHAT IT MEANS
Dry, black or grey powdery deposits	Soot and ash only. Standard chemical-free METClean cycle.
Wet, shiny or tacky deposits on the inlet face	Oil contamination present. Contact our technical team, who may advise a cleaning fluid.
Thick black paste, oily smell or oil weeping from the filter	Oil sludge. Contact our technical team, who may advise a cleaning fluid, and investigate the cause before refitting.

For these filters METClean may advise **METClean DPF One Shot** cleaning fluid, which breaks down the oil so the METClean process can then remove the soot and ash as normal.

Cleaning fluid is not required for every METClean clean. In normal daily use, METClean DPF One Shot is used for on-vehicle cleaning and with the METClean Lite. Where a filter is contaminated with oil or sludge, METClean may advise using One Shot during the cleaning process with any machine. Contact our technical team for the appropriate amount and procedure for your machine and the filter's condition.

FIX THE CAUSE FIRST

Oil does not belong in a DPF. Its presence points to an engine fault upstream, such as worn turbo seals, injector problems or other oil consumption issues. **If the cause is not found and fixed, a cleaned filter will simply become contaminated again.**

QUESTIONS ABOUT YOUR FILTER?

01934 644427 Monday to Friday, 9am to 5pm
WhatsApp +44 1934 910715
contact@mobileecotuning.com

METClean is a brand of MET (Mobile Eco Tuning), Unit 45 Lynx Crescent, Weston-super-Mare, BS24 9DJ. This note is METClean's own explanation of the general principles of its water-and-air cleaning process. It is not an operating manual or a procedure for every model: follow the operating instructions and training for your machine. Results depend on the condition of the individual filter; cracked, melted or physically damaged filters cannot be restored by cleaning. Publication copy prepared 24 October 2026.