



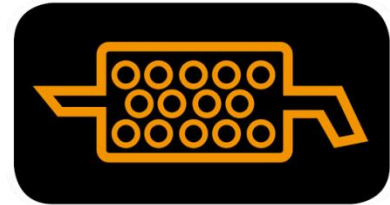
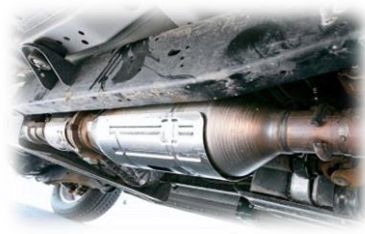
TECHNICAL BULLETIN

Diesel Particulate Filters (DPF) and Correct Lubricants

Issue: May 2016

Diesel Particulate Filters (DPF), sometimes known as Catalysed Particulate Filters (CPF), form part of the latest generation treatment systems, designed to clean exhaust emissions in many late model diesel vehicles. They are found on many modern low emission fuel efficient diesel and turbo diesel engines in passenger cars, 4WD's , light commercial and heavy duty vehicles.

Below are examples of what a DPF may look like:



What does a DPF do and how does it work?

- A DPF captures soot particles from the exhaust gas until a predetermined amount is reached.
- at set time intervals, it cleans or regenerates itself by burning off captured soot using a high temperature cleaning process.

For optimum performance of the DPF, most vehicles will require a low SAPS (Sulphated-Ash Phosphorus Sulphur) oil.

Why do DPFs need low SAPS oils?

- Ash is produced after combustion and is carried, along with soot to be trapped by the DPF. Too much ash and it won't be able to be removed during regeneration, thus clogging the filter which can then cause exhaust back pressure and potential engine damage.
- Phosphorus can poison exhaust system catalysts, reducing their efficiency.
- Sulphur can poison devices that remove nitrogen oxides from exhaust emissions

Below is a picture showing the effects of using the incorrect oil.



Burnt particulate matter that is starting to block the filter.

If the incorrect oil is used, this will block prematurely and cause expensive repair bills!



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Low SAPS oils generally meet an ACEA "C" specification, which are aimed at light duty diesel engines. There are 4 main ACEA low SAPS specifications, all of which have slightly different chemical limits. See below:

Requirement	C1/DL-1	C2	C3	C4
Viscosity HTHS @ 150°C	≥2.9	≥2.9	≥3.5	≥3.5
Sulphur	≤ 0.2	≤ 0.3	≤ 0.3	≤ 0.2
Phosphorus	≤ 0.05	≤ 0.09	≥ 0.07 ≤ 0.09	≤ 0.09
Sulphated Ash	≤ 0.05	≤ 0.08	≤ 0.08	≤ 0.05

One oil
CANNOT
cover all requirements.

Other low SAPS specifications used in the industry:

- Some European car manufacturers have their own low SAPS specifications to cover DPF applications such as BMW LL-04, MB 229.31/51, VW 507.00, amongst others.
- Japan have JASO DL-1 specification, as required in some late model Mazda and Mitsubishi diesel vehicles.

Penrite has the **Enviro Plus** range of low SAPS oils to cover ACEA "C" specifications, Japanese and European requirements, as well as heavy duty diesel engines.

Enviro Plus 5W-30

ACEA C3
VW 504.00/507.00 Approved
BMW Longlife-04
MB 229.51
Porsche C30
MB 229.31
VW 505.01

Enviro Plus 5W-40

API SN/CF
ACEA C2/C3
BMW Longlife-04 Approved
MB-Approval 229.51
GM dexos-2™ Licensed
Porsche A40 Approved
VW 502.00/505.00 Approved
VW 505.01 Approved
MB 229.31
GMW 16177

Enviro Plus 5W-20

API SN
ACEA C2
Chrysler MS-6395
Ford M2C-925A
Ford M2C-930A
Ford M2C-945A
Ford M2C-153H
GMV 16182

Enviro Plus C4

ACEA C4
Renault RN 0720
Ford M2C-934B

Enviro Plus DL-1

JASO DL-1 (Reg. No. D061POA001)
ACEA C2
Ford M2C-934B

Enviro Plus C3

API SN
ACEA C3 & C2
MB 229.52 / 229.51 / 229.31
BMW LL-04
FORD M2C946-A
GM 16177

Enviro Plus C2

API SN
ACEA C2
STJLR.51.5122 (Suitable for use)
STJLR.03.5007
Volvo VVC RBSO-2AE
PEUGEOT PSA B71 2290
VW 506 01

Enviro Plus 10W-40

(Heavy Duty Diesel Engines)
ACEA E4/E6/E9
Renault RLD-3 Compliant
Volvo VDS-4 Approved
Cummins CES 20081 Approved
Mack EO-O Premium Plus
MB 228.51
MTU Type 3
MAN 3477, 3277CRT, 3575
Caterpillar ECF-3-a
DAF Extended Drain

Enviro Plus HD 5W-30

(Heavy Duty Diesel Engines)
ACEA E4/E6/E7/E9
API CJ-4
Caterpillar ECF-3
Cummins CES 20081
Detroit Diesel 93K218
Deutz DQC IV-10 LA
Ford WSS-M2C171-E
Mack EO-O Premium Plus
MAN M3477/M3575/M3271-1
MB 228.31/228.51
MTU Category 3.1 (Pending)
Renault RLD-3
Volvo VDS-4



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DPF Cleaners

Sometimes DPF's need a helping hand, especially if the vehicle is driven short distances and the DPF doesn't get to do a full regeneration at constant speed. Penrite DPF cleaner is a world patented formulation that when added to the fuel –

- Cleans Injectors
- Lowers soot burning temperature
- Improves combustion
- Lowers fuel economy
- Restores lost performance



Please note: some DPFs, often called 'High Flow', **do not** require a low SAPS oil. Please consult the owner's handbook or the Penrite lube guide for the correct choice of oil.

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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