



TECHNICAL BULLETIN

Penrite Low & Mid SAPS Engine Oils

Issue: May 2016



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What are Low & Mid SAPS oils?

- Low and Mid SAPS oils are engine oils with reduced levels of sulphated ash, phosphorus and sulphur compared to standard grade engine oils. They are designed for low emission and fuel efficient petrol and diesel engines and are more compatible with after engine treatment devices such as DPFs (Diesel Particulate Filters)

What are ENVIRO Plus engine oils?

- ENVIRO+ Engine oils are a range of Penrite Low and Mid SAPS (Sulphated Ash, Phosphorus & Sulphur) engine oils developed for modern petrol and diesel fuel efficient, low emission engines.

What are the differences in the ENVIRO+ engine oils?

- Each ENVIRO+ engine oil has different chemical limits depending on the application for which they are intended. This can be broken up into 3 different categories –
 - a) Viscosity**
ENVIRO+ engine oils are available in the following viscosity ranges –
0W-16, 0W-20, 5W-20, 5W-30, 5W-40 & 10W-40
 - b) Base Oil**
Base oil for the ENVIRO+ range is synthetic which can either be Group III, Group IV or a blend of these
 - c) Additive Pack**
Each of the ENVIRO+ range has an additive pack that is matched to an industry specification such as ACEA, API, ILSAC, JASO or OEM (Original Equipment Manufacturer) requirement. The additive pack can vary greatly depending on the desired specification. Some oils are blended solely for Petrol engine vehicles and others can do both Petrol & Diesel variants. Some are blended to cover multiple specifications and others for specific applications.

What are the major industry standards that ENVIRO+ engine oils meet?

API - SN, SN Resource Conserving, SM, CF, CJ-4

ILSAC - GF-5, GF-4

ACEA - A1/B1, A3/B4, A5/B5, C1, C2, C3, C4, E4, E6, E7, E9

JASO - DL-1, DH-2

depends on which ENVIRO+ oil is chosen

Which oils are petrol only?

(Industry / Manufacturer Specifications and **OEM and Industry approved in bold**)

Product – Petrol Only	Specifications
ENVIRO+ HYBRID 0W-16	API SN
ENVIRO+ 0W-20	API SN R/Conserving API Licensed ILSAC GF-5 API Licensed Ford M2C945-A Ford M2C947-A Chrysler MS-6395 GM 16182
ENVIRO+ GF-5 5W-30	API SN R/Conserving API Licensed ILSAC GF-5 API Licensed GM dexos™1 Licensed Chrysler MS-6395 GM 4718M / 6094M Ford M2C946-A



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Which oils are diesel only?

(Industry / Manufacturer Specifications)

Product – Diesel Only	Specifications
ENVIRO+ HD 5W-30	API CJ-4 ACEA E4/E6/E7/E9 Caterpillar ECF-3 Cummins CES 20081 Mack EO-O Premium Plus MAN M3477, M3271-1, M3575 MB 228.31 / 228.51 MTU Category 3.1 Renault RLD-3 Volvo VDS-4

Which oils are petrol and diesel?

(Industry / Manufacturer Specifications and **OEM and Industry approved in bold**)

Product – Petrol & Diesel	Specifications
ENVIRO+ 5W-20	API SN ACEA C2 Chrysler MS-6395 Ford M2C-925A/930-A/945-A/153-H GMV 16182
ENVIRO+ 5W-30	ACEA C3 VW 504.00/507.00 Approved BMW Longlife-04 MB 229.31/229.51 Porsche C30 VW 505.01
ENVIRO+ 5W-40	API SN/CF ACEA C3/C2 BMW Longlife-04 Approved MB-Approval 229.51 Approved GM dexos-2™ Licensed Porsche A40 Approved VW 502.00/505.00/505.01 Approved MB 229.31 GMW 16177
ENVIRO+ 10W-40	API CJ-4/SM ACEA E4/E6/E9 Volvo VDS-4 Approved Cummins CES 20081 Approved Mack EO-O Premium Plus MB 228.51 Approved MAN 3477, 3277CRT, 3575 Renault RLD-3 Approved JASO DH-2 Caterpillar ECF-3-a DAF Extended Drain MTU Type 3
ENVIRO+ C2	API SN ACEA C2 FORD M2C950-A STJLR.51.5122 (Suitable for Use) STJLR.03.5007 Volvo VVC RBS0-2AE Peugeot PSA B71 2290 VW 506.01
ENVIRO+ C3 5W-30	API SN ACEA C3 & C2 Porsche C30 MB 229.31/229.51/229.52 BMW LL-04 Ford M2C946-A GM 16177
ENVIRO+ C4 5W-30	ACEA C4 Renault RN 0720 Ford M2C-934B
ENVIRO+ DL-1 5W-30	ACEA C2 JASO DL-1 Registered



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What are the Chemical differences between the products?

Requirement	C1	C2	C3	C4
Viscosity HTHS @ 150°C	≥2.9	≥2.9	≥3.5	≥3.5
Phosphorus	≤ 0.05	≤ 0.09	≥ 0.07 ≤ 0.09	≤ 0.09
Sulphated Ash	≤ 0.5	≤ 0.8	≤ 0.8	≤ 0.5

Where do each of the Penrite Products fall that are ACEA “C” compatible?

Product	C1	C2	C3	C4
ENVIRO+ 5W-20		X		
ENVIRO+ 5W-30		SFU	X	
ENVIRO+ 5W-40		SFU	X	
ENVIRO+ 10W-40				
ENVIRO+ DL-1		X		
ENVIRO+ C4	SFU			X
ENVIRO+ C3		X	X	
ENVIRO+ C2		X	SFU	

(SFU = Suitable for use)

Can you use Low SAPS oils where Full SAPS oils are specified?

Yes – but this is dependent on the vehicle and the application. Most modern vehicles can quite comfortably run on a Low SAPS oil provided it meets the criteria that is being asked by the manufacturer. Some examples –

05-09 Peugeot 307CC 1.9 Litre T/Diesel – Specification required is ACEA B4. In this case, ENVIRO+ 5W-40 can be used for A3/B4 in vehicles manufactured prior to 2010 – so this is suitable but HPR 5 or HPR Diesel 5 would be the preferred option.

05-09 Nissan Navara D40 2.5lt T/Diesel – Specifications ask for an API CF-4 or an ACEA B3 for Non DPF vehicles. ENVIRO 5W-40 fits this application. Again HPR Diesel 5 or HPR 5 would be the preferred option.

07-09 Renault Scenic T/Diesel – Specification required is an ACEA B4 5W-40 – ENVIRO+ 5W-40 is suitable for this application. Preferred product would be HPR Diesel 5 or HPR 5

Although there are applications where a Low SAPS oil can be used where a full SAPS oil is the specification required, the oil that meets the manufacturers requirements should be the first recommended product – Right Product, Right Application.

Why are some products listed as “Suitable for use” but are not listed as meeting the specifications?

Although the ENVIRO+ range have different chemical properties, some of the products are deemed suitable for use for some applications rather than meeting the specification.

An example of this is ENVIRO+ 5W-40 which meets ACEA C3, is also suitable for use where ACEA C2 applications are specified, although there is no fuel economy benefit.

Another example is ACEA C1. We do not have a C1 product as such. ENVIRO+ C4 meets the key specifications for C1 and therefore the most suitable for use as the only difference between our C4 and ACEA C1 is the fuel economy requirement.



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What is the difference between the OEM Approved product and a normal "C" rated product?

OEM approvals are issued by the manufacturer once product is tested and approved by the manufacturer to have met their requirements. Just because a product meets an ACEA or API specification, does not mean that it instantly meets a manufacturer specification or could be approved by the manufacturer if the oil producer is willing to pay the licensing fees.

The following spider graphs show some graphic examples of OEM performance verses industry specifications –

VW 504.00 / 507.00 V's C3



VW 504.00/507.00 has significantly improved performance in just about all areas over a standard ACEA C3 grade engine oil.

MB 229.51 v's C3



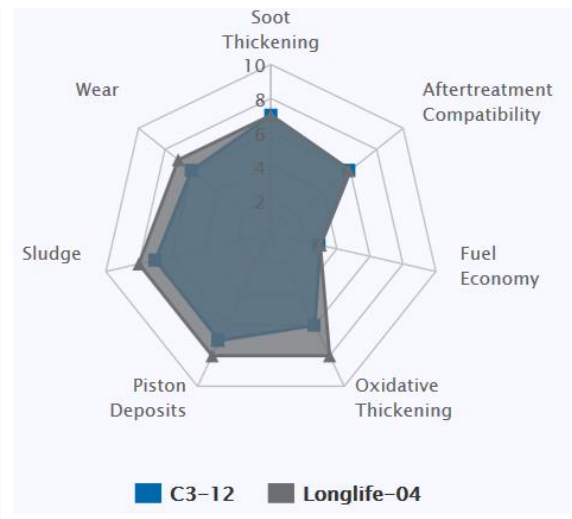
MB 229.51 has similar levels to VW 505.00/507.00 with respect to improved performance in just about all areas over a standard ACEA C3 grade engine oil.

dexos™ 2 V's C3



GM dexos™ 2 has superior performance over a standard ACEA C3 grade engine oil.

BMW LL'04 v's C3



BMW Long Life-04 has superior performance over a standard ACEA C3 grade engine oil.



Penrite ENVIRO+ engine oils with OEM approvals have superior performance in many areas to non OEM approved standard ACEA grade engine oils.

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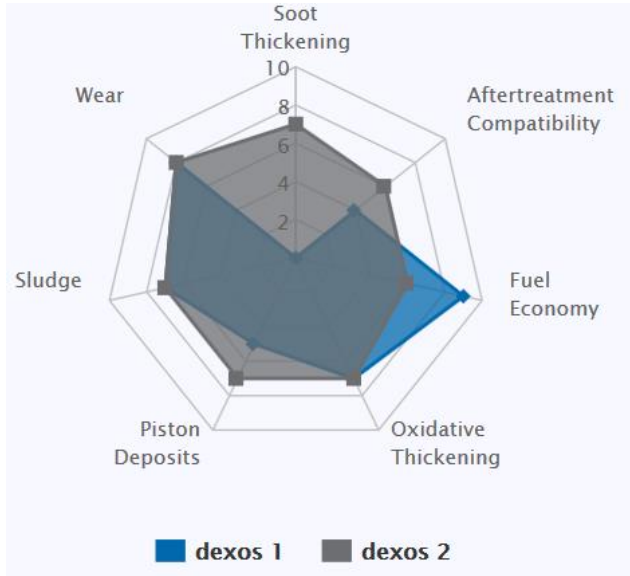


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Many workshops use a dexos™2 product to replace a dexos™1 product. Are they the same or what are the differences?



GM dexos™2 either meets or exceeds the performance of GM dexos™1 in all areas **except** in the important area of fuel consumption. GM dexos™1 does not need the soot thickening or after treatment compatibility that GM dexos™2 needs for diesel engines. To ensure that GM vehicles meet their manufacturer requirements for areas such as fuel economy and emission performance levels, the correct oil should be used as per the manufacturer's requirements.

The future of ENVIRO+. Will there be more oils in this range?

With the introduction of new technologies and vehicles, the ENVIRO+ product range will continue to grow to meet these ever changing requirements from manufacturers and industry bodies.



The Right oil for the Right application.

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