# 10w-60 Oils

## Why do you often advise against using a 10w-60 oil?

We are often asked "Why do you advise against the use of 10w-60 oils?".

Let's get one thing clear, we supply 10w-60 and recommend it where it is appropriate for the engine (several BMW M-Series/Alpinas, some Alfa Romeos, Aston Martins, Ferraris and not a lot else) or the application but conversely I caution against it's misuse!

I have debated this many times on many car forums and I know there are some that do not agree with me, however I have never had a reasonable technical explanation why 10w-60 is in fact suitable for the cars that it is often used in. Many people think that using a 10w-60 is necessary in almost any modified car, especially ones with turbos, and that is a very old-fashioned approach to lubricating a performance car. Many years ago, a thick mineral oil was necessary to cope with higher engine temperatures in powerful engines, now it's often better to up the quality rather than viscosity. Top end ester based synthetic oils of the correct viscosity are the preferable way of lubricating performance engines, not extremely thick mineral oils.

Explaining this is difficult so there may be questions but I'll try my best to explain it in plain English!

Lets look at what oil specs actually mean and particularly the higher number which is in fact the oils SAE number (the "w" number is in fact the cold crank viscosity and measured in a different way) The SAE number is measured by the oils viscosity at 100℃.

Your cars require, according to the manufacturers specs, SAE 30, 40 and in some cases SAE 50.

To attain the relevant SAE number the oil has to be at 100℃ (no thinner than)

SAE 30 11cst approx
SAE 40 14cst approx
SAE 50 18cst approx

Centistokes (cst) is the measure of a fluid's resistance to flow (viscosity). It is calculated in terms of the time required for a standard quantity of fluid at a certain temperature to flow through a standard orifice. The higher the value, the more viscous the fluid.

As viscosity varies with temperature, the value is meaningless unless accompanied by the temperature at which it is measured. In the case of oils, viscosity is generally reported in centistokes (cst) and usually measured at 40℃ and 100℃.

SAE 60 is in fact 24cst viscosity at 100℃!

This is 33% thicker than an SAE 50, 70% thicker than an SAE 40 and over 100% thicker than an

# 10w-60 Oils

SAE 30!

So, what's the problem with this thickness?

Well, this is measured at 100℃ and at lower temps (70-90℃) all oils are thicker than at 100℃ so the problem is compounded to some extent.

The downsides of such a thick oil (when not specified) are as follows:

Additional friction, heat and wear.
A reduction of BHP at the wheels
Lower fuel efficiency

The thicker the oil is the more friction and drag and the more power the engine needs to move it around the engine which inevitably translates to less at the wheels.

So, when do we spec a thicker oil?

Well, you will probably have seen us on occasions recommending a 10w-50 but only in these circumstances.

1. If the car is heavily modded and heat/oil temperatures are excessive.
2. If the car is used on track and heat/oil temperatures are excessive.
3. If it's required by the handbook.

Our criteria for this is based on oil temps as an SAE 40 semi-synthetic can handle around 110℃ for limited periods whereas a proper synthetic SAE 40 can handle 120-130℃ for prolonged periods due to its thermal stability.

Once you see more than say 120℃ for prolonged periods an SAE 50 is advisable as it is 18cst at 100℃ and still 11cst at 130℃! This is in fact the same as an SAE 30 at 100℃.

More importantly at 90℃ an SAE 40 is 15cst, an SAE 50 is 20cst and an SAE 60 is 30cst!

The thicker viscosity oils lead to a slower oil flow rate, which can lead to several problems. There can be localised high oil pressures in the engine, causing increased wear at certain points as the oilways are not designed to cope with the thicker oil. One of the main functions of the oil is to carry heat away from the engine and that is then cooled by the air flow over the sump – with the thicker oil the flow rate is slower, meaning less heat is taken away and higher oil temperatures occur (that can also lead to people thinking they need thicker oils). In a worst case scenario with thick oils (when not required) is that you will experience air entrainment and cavitation inside the bearings at high RPM. Not clever stuff!

I know this is technical stuff but oil is a combination of science and engineering and few people know enough about it to make an informed choice. Just because your mates use it and have had no problems is not a good enough reason to use it, your engine would prefer and benefit from the correct oil.

# 10w-60 Oils

Opie Oils - The Fuel Depot
Cardrew Ind Estate
Redruth
Cornwall
TR15 1SS

Tel: 01209 215164

www.opieoils.co.uk
sales@opieoils.co.uk
Vat: 434 3287 56