

It's been hot, occasionally very hot and if you're driving your favourite car the oil temperature is well above its normal position. Come to a standstill or crawling along in a stop start queue and oil temp will be at 9 or even 10 o'clock position with oil cooler fan on high speed. And the oil pressure, well if you don't do your own oil changes or pay the extortionate prices for Porsches own oil at the local OPC, you probably don't have one. With the oil light flickering on and you having to blip the throttle continuously or raise the tick over by gently pressing the throttle to stop lubricant starvation.

When I was first researching 911's and wondering which model to buy, I was amazed to be reading about engine rebuilds at 80k miles whereas I was driving a classic SAAB 900 Turbo which has 192K on the clock and doesn't have any engine issues. Well I hear you say, Porsche engines are higher power and therefore they wear faster. Wrong, my Saab has a 185 bhp from a 2L engine, that's 93 hp/L whereas my 964 gets 250hp out of 3.6L which is 70 hp/L.

Well it's because oil is a coolant as well as lubricant innit. Well this is a very important point and something that should be born in mind when choosing a suitable oil for our engines. All oils have a temperature point where they breakdown and start to burn and vaporise thereby failing to do the job they're meant to do.

**CHART TWO: OIL TEMPERATURE LIMITS  
PETROLEUM VERSUS SYNTHETIC**

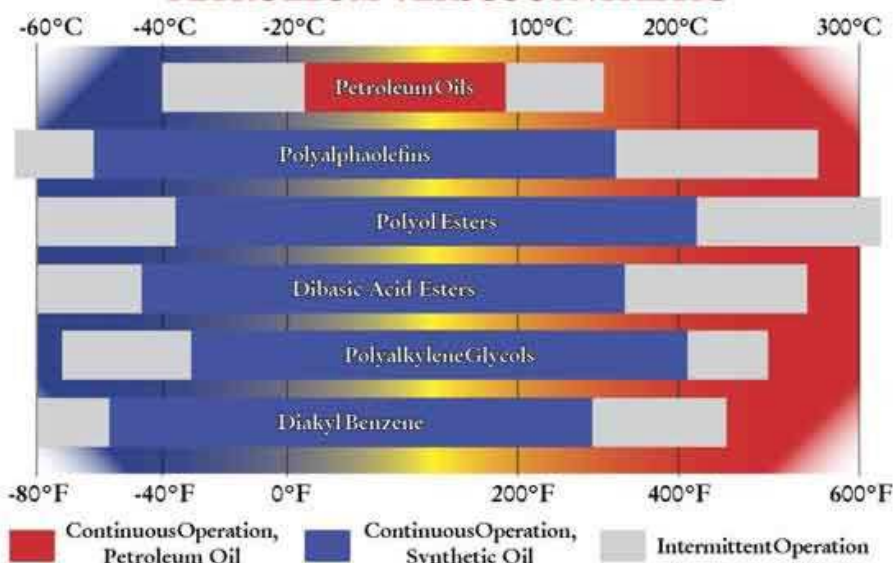


chart by [Tow Professional](#)

As you can see by the chart, synthetic oils have a higher flash point and Esters have the highest. Most engine rebuilds I hear about are top end or if a full strip down is done it is often found that the crank and bearings were fine just the camshaft or valve guides were worn which is the top end on a conventional engine layout. So if it's the top end that's failing on a high proportion of air cooled engines above 80K miles, what might be the cause? Well this is the hottest part of the engine so it may well be the oil breaking down that's causing this. I assume that the semi-synthetic oils have a flashpoint somewhere between the regular oil and fully synthetic. The trouble with semi-synthetic oils is you don't know what ratio the mix is.

The next quality to look for in an oil is the viscosity, this is temperature range that the oil remains liquid and is noted by the SAE numbers.

The first numbers are the cold temperature liquidity and for the UK where we rarely if ever have temperatures at -10°C let alone driving around in it. Scottish owners may need a thinner oil if they do.

## SAE Grades

For Engine Oils Recommended in Relation with the Outside Temperatures ( °C)

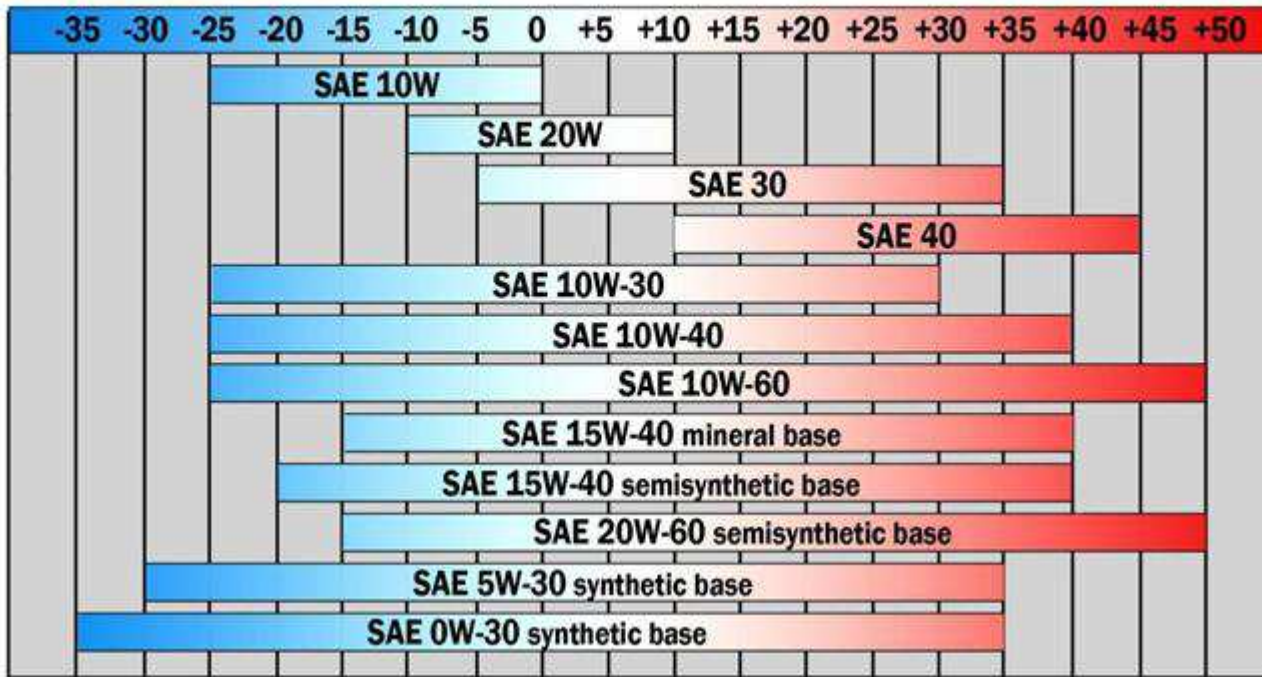


Chart by machinerylubrication.com

Remember the chart refers to Ambient temperatures and 20W oil is good for -15°C and 10W for -25°C so using any oil that is below 10W is unwarranted and will only lead to large pools of oil under your car as the super thin oil will find its way through seals and machined surfaces where no gasket is used as is the case with our engines.

The second figure is the ability to stay thick at higher temperatures. I have found through my own experimentation that 50 grade is fine for my 964's and maintains a minimum of 1.0 Bar when very hot as can be seen in the pictures below as I was stuck in traffic on the M42 recently. Eagle eyed will notice the outside temp reading on the computer is a little on the low side, the sensor isn't wired in yet.



Even when very hot I'm getting 5 Bar at 2,600 rpm

The SAE numbers are not a linear but logarithmic scale so be careful in thinking that putting 60 weight oil in place of 50 weight oil is just a little thicker. Steve Brookes tried a new formula 10W-60 oil and found his engine was not spinning so freely and seemed to be struggling. He found an article substantiating this and immediately changed the oil back to a 15W-50 variety and normal service resumed.

I recently met a chap who raced a 964 who did use 10W-60 oil and he said he got the oil hot before opening it up because of this problem. Trying to drive overly thick oil through the fine tolerances in our engines will put a strain on the engine and produce its own set of problems down the road. So make sure the oil is well warm before flooring it if you use such oil.

Lastly I want to mention additives. Oil formulas have changed dramatically during my lifetime. I remember folks leaving a small paraffin heater under their sumps during the winter months so they stood a chance of starting the car the next day. Those were the days of single grade mineral oils. By the time I could afford a sports car things had progressed and Duckhams 20W-50 was de rigueur along with STP for added protection as we worked on getting maximum power by polishing the cylinder heads, fitting larger valves, semi race cams, shot peened rods and lightened flywheels etc. That was in the late 60's early 70's and by the time our 964 engines were built in 1989 synthetic oil was being produced.

Why? because engines were more powerful and with turbochargers, running much hotter. This was causing mineral oils to overheat and convert into a black sludge which blocked the oilways and caused engine failure. Synthetics had been fine until 1996 when because of pressure by USA, the anti-wear additive ZDDP was reduced from 1500 to 800ppm. In 2004 it was reduced even further to 400ppm because it's believed that catalytic converters were degraded over time because of it. This is not such a problem for newer engines as their valve trains have roller bearings in the valve train. However our engines have the old-style frictional valve trains where the rocker rides on the cam and the other end pushes down on the valve stem and are the parts that most needs the ZDDP additive.

Most oil manufacturers have a Classic or Motorsport grade of oil with ZDDP levels well above 1,000ppm and energy/fuel conserving oils which don't, so it's obvious which one we should be using.

This article was prompted because a friend who'd had just had a service at a Indy who have a good reputation with the water cooled Porsches and he thought the oil pressure wasn't as good as it should be. It had been filled with 10W-40 semi-synthetic and so he was changing it. When he drained it found more than 10.5L which means it was over filled. Let's face it, garages will have a "fit all cars" motor oil which they bulk buy plus they give the job to the trainee who doesn't know about dry sump engines.

So if you don't do your own oil changes you need to find out what your garage uses on your motor otherwise it'll be a £7k rebuild at 80k miles if you're a spirited driver.

Finally oil builds up acid content with usage by a combination of heat and oxidation and this will eat the bearings, so before you put your car to bed for the winter layup, change it. Most users change it annually and I do too along with a new oil filter of course.