

Engine oils have two measurable things are important to lubrication in your engine: the viscosity rating and the lubricity rating. These can be found on the oil container label.

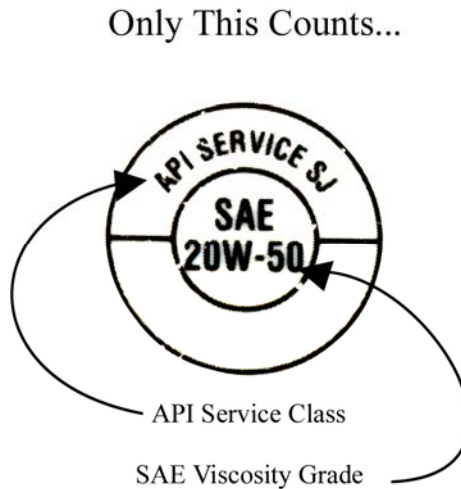
Your owner’s manual will tell you what viscosity rating to use, which is climate dependent, and what minimum lubricity rating to use. The viscosity rating is a number or two numbers, such as “30” or “5W-30”, associated with the letters “SAE”, and is important for steady running. The lubricity rating is a two-letter code, such as “SM” or “CD”, and is crucially important for decreasing engine wear during cold start.

There is a lot of hype and advertising on most oil container labels. The only thing you can trust is the “API donut”, usually near the bottom of the back label. If that donut is missing, the oil does not meet API quality standards for the lubricity rating. I would not even use it in a lawnmower.

HOW TO READ AN OIL CONTAINER LABEL:



Back Label



SAE VISCOSITY GRADES –

In different climates at different times of the year, you may need a different viscosity grade. It all depends on typical ambient temperatures. Higher viscosity numbers go with hotter weather. Do what it says in your owner’s manual, except use one grade higher viscosity in old, worn-out engines.

The single number grades (SAE 30, SAE 40) are rarely specified now, as they are very difficult to pump during cold weather start. This causes a lot of engine wear until the oil flows into the bearings. The more modern “multi-grades” have a two-number designation, such as SAE 20W-50. The “20W” refers to easily-pumped 20-weight

behavior during winter cold starts, and the “50” refers to the more protective behavior of a thicker 50-weight oil during steady running, fully warmed up.

API LUBRICITY GRADES –

The two-letter codes always start with either a C or an S. C is for diesel engines, S is for gasoline engines. It is the second letter that tells you how good the lubricity rating is: the later the letter, the better. Both are alphabetic scales, but those scales are different for the C vs the S: the F in a CF oil is not the same lubricity rating as the F in an SF oil.

Some are dual-rated with two codes, one a C, the other an S. That’s fine, as long as the second letter in the one pertaining to your vehicle is adequate. ***All you need do is buy the oil with the right C or S first letter, and a second letter that is the same, or later in the alphabet, than what your owner’s manual says.***

TECH STUFF –

The improved lubricity grades, and the easier cold start viscosity ratings in the two-number viscosity grades, both derive from additives to the base petroleum oil. These are polymers (essentially liquid plastics made from petroleum) that make up about 20% of the volume of standard engine oil. The remainder is simple refined petroleum.

The petroleum portion never wears out, but the additives do, which is why engine oil needs frequent changing. The waste oil gets re-refined, with new additives, and we get to use it again. Besides the horrible pollution petroleum can cause when dumped in the environment, this reuse, in world beginning to run short of petroleum, is why it is so important that we recycle our used motor oil.

The “synthetics” are mostly made of these polymers and very little base petroleum. They can last a very long time between changes, but are also very expensive. There are also “synthetic blends”, which have a little higher polymer content than standard engine oils. These last somewhat longer than standard oils, and are only a little more expensive.