

On April 2, 2013 SAE (Society of Automotive Engineers) codifies new oil viscosity grade (SAE 16)

Specifications for the new viscosity grade was published in a revision of "SAE J300: Engine Oil Viscosity Classification" as showed on below table.

SAE J300 REVISED APRIL 2013 - VISCOSITY GRADES FOR ENGINE OILS					
SAE Viscosity Grade	Low-Temp [°C] Cranking Viscosity	Low-Temp [°C] Pumping Viscosity	Low-share-rate Kinematic Viscosity		High-share-rate Viscosity
	mPa.s Max	mPa.s Max with no yield stress	mm ² /s at 100°C Min	mm ² /s at 100°C Max	mPa.s at 150°C Min
	ASTM D 5293	ASTM D 4684	ASTM D 445		ASTM D4683, D4741, D5481 or CEC I-36-90
0W	6200 at -35	60 000 at -40	3.8	-	-
5W	6600 at -30	61 000 at -35	3.8	-	-
10W	7000 at -25	62 000 at -30	4.1	-	-
15W	7000 at -20	63 000 at -25	5.6	-	-
20W	9500 at -15	64 000 at -20	5.6	-	-
25W	13000 at -10	65 000 at -15	9.3	-	-
16	-	-	6.1	< 8.2	2.3
20	-	-	6.9	< 9.3	2.6
30	-	-	9.3	< 12.5	2.9
40	-	-	12.5	< 16.3	3.5 (*)
40	-	-	12.5	< 16.3	3.7 (**)
50	-	-	16.3	< 21.9	3.7
60	-	-	21.9	< 26.1	3.7

(*) for 0W/40, 5W/40 and 10W/40 grades

(**) for 15W/40, 20W/40, 25W/40 and 40 SAE grades

The revision of J300 was request by a consortium of passenger car OEMs to provide a viscosity grade lower than SAE 20 to lower hydrodynamic friction and increasing fuel economy.

The new grade will be specified in the future by OEMs for cars specifically designed to use new low-viscosity oils. It is not recommended for use with older engines or newer vehicles not designed for such low-viscosity oils.

The number "16" was chosen, instead the natural "15" before of 20, to avoid confusing with a popular grade 15W/40 commonly used in the world on passenger cars and consequently misapplication of the wrong oil in the wrong vehicle.

Could be possible that SAE 16 will be a starting for a new series of low-temperature grades as SAE 12, SAE 8, SAE 4 decreasing of 4 values instead of usual 5.

It 'good to note that for the first time we have an intersection in the range of viscosity grades SAE between two. If we compare the 16 with the 20 we see immediately that while the 16 has a maximum viscosity at 100 ° C of less than 8.2 the minimum of SAE 20 remains positioned to 6.9. This means that between > 6.9 and < 8.2 can be classified as an oil which is SAE 16 SAE 20.

The minimum KV100 of the SAE 20 grade is increased from 5.6 mm²/s to 6.9 mm²/s for two reasons:

- equipment manufacturers desire to narrow this range to ensure proper operation of hydraulically-actuated engine control devices which are sensitive to kinematic viscosity
- the lower portion of the KV100 range is not being utilized and is outside of the formulating range of oils with HTHS viscosity > 2.6 mPa.s. The new minimum value of 6.9 mm²/s was selected to provide the same KV100 range as a fraction of the minimum KV100 of the SAE 20 grade $\{(9.3-6.9)/6.9 = 0.35\}$ as the current SAE 30 grade $\{(12.5-9.3)/9.3 = 0.34\}$. Raising the minimum KV100 is not expected to impact commercial SAE XW-20 lubricants in the marketplace.

The new J300 revision does not make any changes to the low-temperature W grades.