

PHYSICAL REQUIREMENTS FOR ENGINE OILS

SAE VISCOSITY GRADES FOR ENGINE OILS (1) (2) SAE J300 DEC 1999

SAE	Low Temperature Viscosities		High-Temperature Viscosities		
	Cranking (3) (cP) Max at temp °C	Cranking (4) (cP) max with no yield stress at temp °C	Kinematic (5) (cSt) at 100°C min max		High Shear(6) (cP) at 150°C and 10 ⁻⁶ s ⁻¹ min
0W	6200 at - 35	60,000 at - 40	3.8	--	--
5W	6600 at - 30	60,000 at - 35	3.8	--	--
10W	7000 at - 25	60,000 at - 30	4.1	--	--
15W	7000 at - 20	60,000 at - 25	5.6	--	--
20W	9500 at - 15	60,000 at - 20	5.6	--	--
25W	13000 at - 10	60,000 at - 15	9.3	--	--
20	--	--	5.6	<9.3	2.6
30	--	--	9.3	<12.5	2.9
40	--	--	12.5	<16.3	2.9 (0W-40, 5W-40, 10W-40 grades)
40	--	--	12.5	<16.3	3.7 (15W-40, 20W-40, 25W-40,40 grades)
50	--	--	16.3	<21.9	3.7
60	--	--	21.9	<26.1	3.7

1. Notes: 1 cP = 1mPa * s; 1 cSt = 1 mm²/s
2. All values are critical specifications as defined by ASTM D3244 (see text, Section 3)
3. ASTM D5293
4. ASTM D4684: Note that the presence of any yield stress detectable by this method constitutes a failure regardless of viscosity.
5. ASTM D445
6. ASTM D4683, CEC L-36-A-90 (ASTM D4741), or ASTM D5481.

Note: Mandatory compliance June 2001.

In the interim, oil marketers may comply with either APR 97 or DEC 1999 standards.