

SAE Viscosity Grades For Engine Oils^{*(1) (2)}

SAE Viscosity Grade	Low-Temperature (°C) Cranking Viscosity ⁽³⁾ , mPa-s Max	Low-Temperature (°C) Pumping Viscosity ⁽⁴⁾ , mPa-s Max with No Yield Stress ⁽⁴⁾	Low-Shear-Rate Kinematic Viscosity ⁽⁵⁾ (mm ² /s) at 100°C Min	Low-Shear-Rate Kinematic Viscosity ⁽⁵⁾ (mm ² /s) at 100°C Max	High-Shear-Rate Viscosity ⁽⁶⁾ , mPa-s at 150°C Min
0W	6200 at -35	60000 at -40	3.8	-	-
5W	6600 at -30	60000 at -35	3.8	-	-
10W	7000 at -25	60000 at -30	4.1	-	-
15W	7000 at -20	60000 at -25	5.6	-	-
20W	9500 at -15	60000 at -20	5.6	-	-
25W	13000 at -10	60000 at -15	9.3	-	-
20	-	-	5.6	<9.3	2.6
30	-	-	9.3	<12.5	2.9
40	-	-	12.5	<16.3	3.5 (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 = 1 mPa-s; 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

*This document — SAE J300 revision of November 2007 — supersedes SAE J300 of May 2004. This revision becomes effective May 2009, 18 months after the revised Standard became available for voluntary compliance. Reprinted with permission from SAE J300.

API Base Oil Classification

Group	Vis. Index	Saturates	Sulfur	Other
I	80 - 120	<90% and/or	≥0.03%	-
II	80 - 120	≥90% and	<0.03%	-
III	>120	≥90% and	<0.03%	-
IV				PAO (Poly Alpha Olefin)
V				Everything Else
VI		Europe Only (ATIEL)		PIO (Poly Internal Olefins)

- Companies also use their own marketing phrases: "Group 1-1/2" and "Group 2+"
- "Group III" can be legally labeled "Synthetic"
- The word "Synthetic" is not part of the API Classification
- "Synthetic" is a marketing term, not a technical term

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