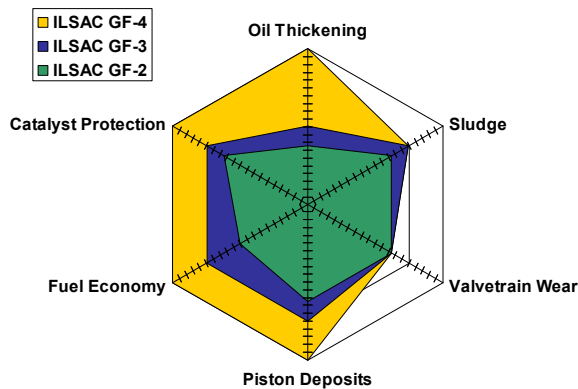


API SM/ILSAC GF-4

Back in June a new specification was finalised, ILSAC GF-4. Not long after, API SM was finalised. The below chart and table illustrates the differences between ILSAC GF-3 and GF-4 and shows the great step forward that has been made.



New Sequence IIIG Engine Test

Engine Test Requirements ^a	Viscosity Grade Performance Requirements	
	0W-20, 5W-20, 0W-30, 5W-30, 10W-30 (GF-4)	All Others
Sequence IIIG Sequence III GA Sequence IVA (ASTM D 6891) Sequence VG (ASTM D 6593) Sequence VIII (ASTM D 6709)	Pass Pass Pass Pass Pass	Pass NR Pass Pass Pass
Bench Test and Measured Parameter ^a	ILSAC	All Others
ASTM D 6557 (Ball Rust Test), avg. gray value, min	100	100
ASTM D 5800, evaporation loss, 1 hour at 250°C, % max ^b	15	15
ASTM D 6417, simulated distillation at 371°C, % max	10	10
ASTM D 6795, EOFT, % flow reduction, max	50	50
ASTM D 6794, EOWTT, % flow reduction, max		
–with 0.6% H ₂ O	50	50
–with 1.0% H ₂ O	50	50
–with 2.0% H ₂ O	50	50
–with 3.0% H ₂ O	50	50
ASTM D 4951, phosphorus % mass, max^c	0.08 ^d	NR
ASTM D 4951, phosphorus % mass, min^c	0.06 ^d	0.06 ^d
ASTM D 4951, or D 2622, sulfur % mass, max^c		NR
–SAE 0W-20, 0W-30, 5W-20, and 5W-30 multigrades	0.5 ^d	
–SAE 10W-30 multigrades	0.7 ^d	
ASTM D 892 (Option A), foaming tendency		
–Sequence I, mL, max, tendency/stability ^e	10/0	10/0
–Sequence II, mL, max, tendency/stability ^e	50/0	50/0
–Sequence III, mL, max, tendency/stability ^e	10/0	10/0
ASTM D 6082 (Option A), high-temperature foaming tendency/stability ^f	100/0	100/0
ASTM D 6922, homogeneity and miscibility	^g	^g
ASTM D 6709, (Sequence VIII) shear stability	^h	^h
TEOST MHT, high temperature deposits, deposit wt, mg, max	35	45
ASTM D 5133, gelation index, max	12 ⁱ	NR