

Superior Chemistry. Superior Performance.



# ALL FLEET DIESEL ENGINE OILS

Today heavy duty diesel lubrication needs are more demanding and complex than ever. Only the most advanced oils can meet the difficult challenge of effectively balancing durability, extended drain intervals and emission control. All MAG 1 Fleet Engine Oils are specially engineered for heavy duty diesel and gasoline engines operating under all service conditions.

MAG 1 15W-40 CJ-4 diesel engine oils offer a high starting TBN of 10.0, better TBN retention than most major brand competition as measured by ASTM D-4739 (8.3 vs. 7.5 for the leading major brand), and superior soot dispersancy and deposit control. Extremely shear stable viscosity modifier chemistry is used to maintain stay-in-grade performance equal to or better than most major brands. MAG 1 15W-40 CJ-4 diesel engine oils are registered as approved OEM fluids with Mack, Cummins, and Detroit Diesel for warranty protection of customers' vehicles.

MAG 1 Full Synthetic All Fleet 5W-40 Motor Oil is engineered for heavy duty diesel and gasoline engines operating under all service conditions. Benefits include:

- 1-3% fuel savings vs. a traditional 15W-40
- Wear protection significantly exceeding API CJ-4 and the toughest OEM specifications
- High detergency and superior dispersancy keep engines and pistons clean and soot suspended in the oil despite longer drain intervals and increased soot loading
- Higher starting TBN (10.0) provides added oxidation control and protection against acid build-up that can cause rust and corrosion
- Excellent TBN retention
- Excellent oxidation control and piston cleanliness

## Typical Physical Properties of MAG 1 All Fleet Diesel Engine Oils

Fluid Type	Method	Typical Results						
		10W API CF	30 API CF, CF-2/SG	40 API CF, CF-2/SG	10W-30 API CI-4/SL	15W-40 API CJ-4/SM	20W-50 API CG-4	Full Synthetic 5W-40 API CJ-4/SM
Gravity, °API	ASTM D287	31.01	30.53	29.04	31.12	29.85	30.70	33.57
Specific Gravity @ 60°F (15.6°C)	ASTM D4052	0.8707	0.8733	0.8814	0.8701	0.8770	0.8724	0.8572
Viscosity @ 100°C cSt	ASTM D445	8.24	12.24	15.46	11.75	15.61	18.51	14.76
Viscosity @ 40°C cSt	ASTM D445	52.75	100.3	143.1	77.56	118.8	142.1	87.75
Viscosity Index	ASTM D2270	128	114	111	145	138	147	177
Pour Point °C (°F)	ASTM D5950	-36°C (-33°F)	-30°C (-22°F)	-27°C (-17°F)	-33°C (-28°F)	-30°C (-22°F)	NA	-45°C (-49°F)
Cold Cranking Simulator at (°C), cP	ASTM D5293	NA	NA	NA	6207 (-25)	6087 (-20)	3809 (-15)	6535 (-30)
High Temperature / High Shear Vis at 150°C, cP	ASTM D4683	NA	3.8	4.5	3.5	4.2	NA	3.5
Noack Volatility, % loss	ASTM D 5800	NA	NA	NA	13.4	11	NA	13
Color	ASTM D 1500	2.5	2.5	2.5	2	2.5	2.5	2.5
Zinc, wt. %	ASTM D 5185	0.104	0.104	0.104	0.141	0.1287	0.104	0.127
Phosphorus, wt. %	ASTM D 5185	0.094	0.094	0.094	0.128	0.115	0.094	0.115
Calcium, wt. %	ASTM D 5185	0.179	0.179	0.179	0.243	0.12	0.179	0.082
Sulfur, wt. %	ASTM D 5185	0.243	0.243	0.243	0.331	0.308	0.243	0.314
Magnesium, wt. %	ASTM D 5185	0.021	0.021	0.021	0.028	0.083	0.021	0.116
Sulfated Ash, wt. %	ASTM D 874	0.86	0.86	0.86	0.99	0.99	0.86	0.99
Nitrogen, wt. %	ASTM D 4629	0.076	0.076	0.076	0.103	0.11	0.076	0.124
MRV at (°C), cP	ASTM D4 684	NA	NA	NA	NA	23700 (-25)	NA	24,113 (-35)
TBN, mgKOH/g"	ASTM D 2896	7.5	7.5	7.5	10.0	10.0	7.5	10.0



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