PHILLIPS 66 LUBRICANTS

Shield® Valor

Premium Full-Synthetic Passenger Car Engine Oil

Phillips 66® Shield Valor Full Synthetic Motor Oil is a premium quality, full-synthetic automotive engine oil designed to provide excellent engine protection for both turbocharged gasoline direct injection, conventional gasoline-fueled and flex-fueled passenger cars and light trucks under all operating conditions. It is particularly recommended for vehicles operating at extreme temperatures or under severe driving conditions, such as towing heavy loads.

Shield Valor Full Synthetic Motor Oil is formulated with synthetic base stocks and an exclusive performance additive package. The full-synthetic formulation, compared with conventional engine oils, provides improved protection against viscosity breakdown and deposit formation at high temperatures; lower volatility for reduced oil consumption; and faster oil circulation at low temperatures for easier starting and better protection during cold starts.

Shield Valor Full Synthetic Motor Oil exceeds new car warranty requirements as defined by ILSAC GF-7. It is uniquely formulated to help combat low speed pre-ignition (LSPI) in turbocharged gasoline direct injection engines. Shield Valor Full Synthetic Motor Oil meets or exceeds “Resource Conserving” requirements for fuel economy improvement, emission system and turbocharger protection, and protection of engines operating on ethanol-containing fuels up to E85. It is backward serviceable for use where API SP or earlier “S” category engine oils are recommended.

Applications

- Turbocharged gasoline direct-injection, conventional gasoline-fueled and flex-fuel passenger cars, light trucks and sport utility vehicles, including gasoline-electric hybrids, especially when operating under severe conditions
- Four-stroke cycle gasoline engines in other mobile or stationary equipment

Shield Valor Full Synthetic Motor Oil is licensed for:

- ILSAC GF-6A, 0W-20
- ILSAC GF-7A, 5W-20, 5W-30, 10W-30
- ILSAC GF-7B, 0W-16
- API Service SQ, with Resource Conserving (except 0W-20 which is API SP, SN Plus with Resource Conserving)
- GM dexos™1 Gen3, 0W-20 and 5W-30

Shield Valor Full Synthetic Motor Oil meets or exceeds the requirements of:

- Chrysler MS-6395 (except 0W-16)
- Ford WSS-M2C970-A1 (SAE 5W-20)
- Ford WSS-M2C971-A1 (SAE 5W-30)
- Ford WSS-M2C972-A1 (SAE 0W-20)
- GM6094M (obsolete specification) (does not include 0W-16)

KEEPING THE WORLD RUNNING SMOOTHLY

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Features/Benefits

- Helps protect against low speed pre-ignition (LSPI) in turbocharged gasoline direct-injection engines (TGDI)
- Exceeds ILSAC GF-7 requirements for new cars under warranty
- Enhanced performance benefits at extreme temperatures compared with conventional engine oils
- Outstanding resistance to viscosity and thermal breakdown at high temperatures
- Protects against sludge and varnish formation
- Protects against rust and bearing corrosion
- Low volatility for reduced oil consumption
- Excellent low temperature pumpability for protection during cold starts
- Highly resistant to foaming
- Formulated to protect turbochargers and emission control system catalysts
- Formulated for use in vehicles operating on ethanol-containing fuels up to E85

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Typical Properties					
SAE Grade	**0W-16**	**0W-20**	**5W-20**	**5W-30**	**10W-30**
Specific Gravity @ 60°F	0.846	0.845	0.848	0.850	0.853
Density, lbs/gal @ 60°F	7.05	7.05	7.06	7.10	7.11
Color, ASTM D1500	3.0	3.0	3.0	3.0	3.0
Flash Point (COC), °C (°F)	229 (444)	226 (439)	229 (444)	226 (439)	232 (450)
Pour Point, °C (°F)	-43 (-45)	-45 (-49)	-41 (-42)	-40 (-40)	-39 (-38)
Viscosity, Kinematic					
cSt @ 40°C	35.0	42.0	47.3	59.6	65.9
cSt @ 100°C	7.0	8.0	8.5	10.1	10.8
Viscosity Index	166	169	158	157	155
Cold Cranking Viscosity, cP	5,000	5,700	4,500	5,700	4,000
@ (°C)	(-35)	(-35)	(-30)	(-30)	(-25)
High Temp/High Shear Viscosity,					
cP @ 150°C	2.5	2.6	2.7	3.2	3.3
Sulfated Ash, ASTM D874, wt %	0.8	0.8	0.7	0.8	0.7
Total Base Number (TBN), ASTM D2896	7.7	7.9	7.8	8.3	7.9
Phosphorus, wt %	0.065	0.068	0.065	0.065	0.065
Zinc, wt %	0.072	0.074	0.072	0.078	0.072

Health & Safety Information

For recommendations on safe handling and use of this product, please refer to the Safety Data Sheet via http://www.phillips66.com/SDS.

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