QUALITY PROTECTS.

QUALITY WORKS.

LANXESS Energizing Chemistry

Naugalube® 438L

Nonylated diphenylamine antioxidant

Naugalube® 438L is based on LANXESS antioxidant technology, with a proven track record of reliable performance for over 40 years. Developed for the most demanding environments, Naugalube® 438L is recognized throughout transport and industrial lubricant markets as an antioxidant of choice.

Naugalube® 438L is a liquid antioxidant for use in a broad range of transport and industrial lubricants. It offers excellent protection against high-temperature oxidation and lubricant degradation in mineral and synthetic-based fluids. Typical treatment levels may range between 0.05% and 1.0%. Naugalube® 438L can also be used in conjunction with other Naugalube® antioxidants such as alkylated diphenylamines, alkylated phenyl-α-naphthylamine and/or hindered phenolics.

Applications

● Primary recommendation ● Alternative recommendation

Industrial						Marine		Aviation		Automotive				Grease		
Gear oil	Turbine oil	Hydraulic oil	Heat transfer oil	Chain oil	Compressor oil	Trunk piston engine oil	System oil	Turbine oil	Hydraulic oil	Gasoline engine oil	Diesel engine oil	Auto transmission fluid (ATF)	Differential fluid	Automotive grease	Industrial grease	Aviation grease
●	●	●			●	●	●	●	●	●	●	●	●	●	●	

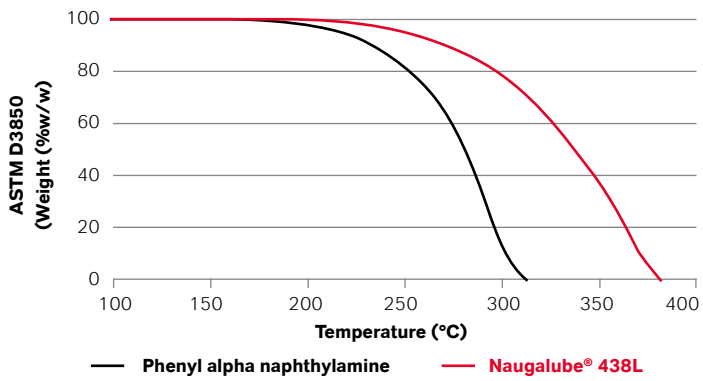
Features

- Liquid antioxidant
- High-molecular-weight antioxidant
- Excellent high-temperature performance
- Effective control against viscosity increase
- Reduced varnish, deposits and sludge formation

Benefits

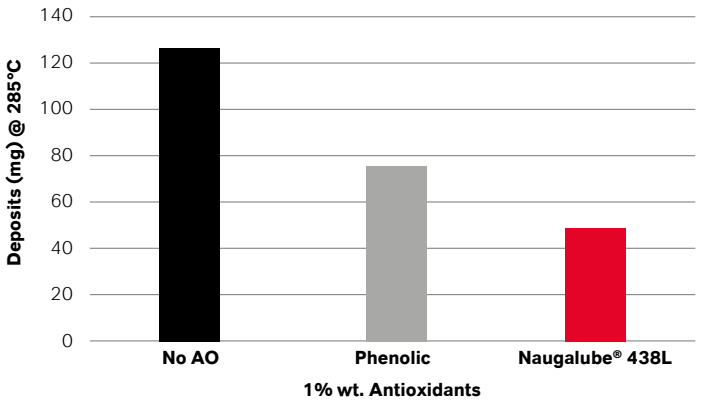
- Provides easy handling and blending
- Low volatility providing prolonged antioxidant protection in finished formulations
- Reduced oil oxidation, prolonged lubricant life and extended service intervals
- Positive impact on oil circulation and fuel efficiency
- Decreased wear, plugging and mechanical seal damage

TGA profile of Naugalube® 438L



Additive volatility can influence lubricant performance characteristics. Thermogravimetric analysis (TGA) of Naugalube® 438L demonstrates its high thermal and oxidative stability and superior performance when compared alongside naphthylamine-type antioxidant chemistry, supporting its use in higher-temperature crankcase applications.

Antioxidant response by TEOST MHT ASTM Method D7097



TEOST MHT (thermo-oxidation engine oil simulation test) is an industry standard test method for the determination of moderately-high-temperature piston deposits. TEOST MHT testing of Naugalube® 438L shows substantial antioxidant response and resistance to deposits over the phenolic in SAE 5W-20 PCMO (ILSAC GF-4) Group II based oil.

Shipping information: tank cars, tank trucks and non-returnable drums

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Energizing Chemistry

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