

Viscosity Recommendations

The viscosity of an oil is a measure of its resistance to flow. The Society of Automotive Engineers has classified engine oils in viscosity grades: Oils that meet the low temperature [0°F (-18°C)] requirement carry a grade designation with a “W” suffix. Oils that meet both the low and high temperature requirements are referred to as multigrade or multiviscosity grade oils.

Multigraded oils are generally produced by adding viscosity index improver additives to retard the thinning effects, a low viscosity base oil will experience at engine operating temperatures. Multigraded oils that meet the requirements of the API classifications, are recommended for use in Cummins engines.

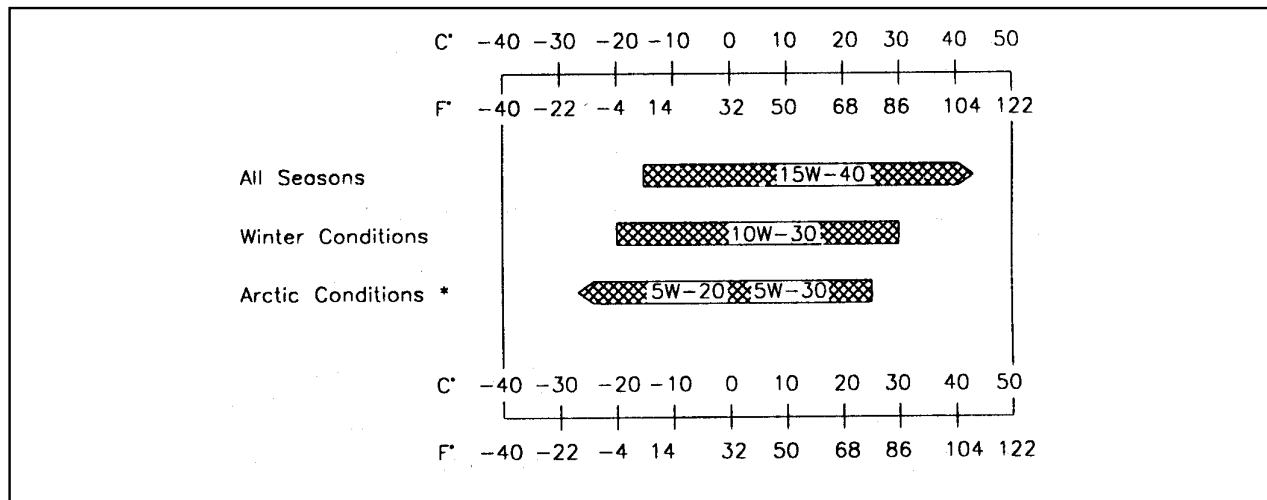
Cummins recommends the use of multigraded lubricating oil with the viscosity grades shown in Table 11-1 which shows Cummins Viscosity grade recommendations at

various ambient temperatures. The only viscosity grades recommended are those shown in this table.

Cummins has found that the use of multigraded lubricating oil improves oil consumption control, improved engine cranking in cold conditions while maintaining lubrication at high operating temperatures and may contribute to improved fuel consumption. Cummins does not recommend the use of single grade lubricating oils.

The primary criterion for selecting an oil viscosity grade is the lowest temperature the oil will experience while in the engine oil sump. Bearing problems can be caused by the lack of lubricating during the cranking and start up of a cold engine when the oil being used is too viscous to flow properly. Change to a lower viscosity grade of oil as the temperature of the oil in the engine oil sump reaches the lower end of the ranges shown in Table 11-1.

Table 11-1 : Cummins Recommended SAE Oil Viscosity Grades vs Ambient Temperatures



Note : For temperature consistently below -25°C (-13°F) refer to lub oil manufacturer for recommendations.

Engine Oil Recommendations for Cummins Engines

Quality of Lubricating oil is one of the key drive factors to decide the performance, Durability and total cost of operation of diesel engine. Hence we have always been recommending the best available / suitable engine oil to be used in our engine.

Cummins India Limited has been continuously upgrading the products to incorporate latest technology such as low temp. aftercooling, two stage turbocharging, electronics, air to air charge air cooling, high power to

weight ratio etc. for meeting customer expectations of engine performance, durability and cost of operation.

Lubricating oil have also undergone various improvements to meet the requirements of these changes in diesel engine technology. With this, SAE 15W40 grade Lubricating oil with API CH-4 classification is now available in India from most of oil companies. This is the best engine oil currently available in India suitable for Cummins engines. However we recommend to use Valvoline Cummins Premium Blue for Cummins engine.

- This provides several advantages such as,
- Reduced wear and tear.
 - Better high temp oxidation stability
 - Optimum Lub oil consumption.
 - Lesser crown land deposits on piston and valves.
 - Better emission control
 - Better cleanliness of internal passages and components.
 - Less sludge formation due to improved dispersancy.
 - Increased control on acid formation resulting in less corrosion of bearings and other components.

Cummins India Limited strongly recommends the use of SAE 15W40 Lub oil with API CH-4, CES 20071 & CES 20076 classification for all Cummins engines to get the various advantages and optimum performance from the engine.

As a comparative advantage we strongly recommend following brands of lube oils for Cummins engines.



Valvoline Cummins Premium Blue, API CH-4, CES 20071 & CES 20076.

This oil have a minimum TBN of 10.5 to counteract the higher sulphur content of high speed diesel available in India.

CAUTION

Beware of the spurious oils in the market. Bad oil quality is detrimental to engine performance. Hence oil should always be procured from the original manufacturer or the authorised distributor.

Lubricating oil to be used in the engine must meet all qualities as per manufacturer’s specifications. Cummins India recommends audit checks of fresh engine oil to ensure the quality of oil. Facility to check suitability of oil for using it in the engine is available with Cummins service network.

If in doubt about the quality of lub oil, contact lub oil manufacturing company / Cummins service network and get oil analysed in laboratories.

Do not intermix different brands of oil as two different brands of oils may not be compatible with each other. It is there fore recommended that the brand which is used for initial fill / oil change, should only be used for top-up. Different brand of oil may be used after draining all the existing oil i.e., at the oil drain interval and after flushing the lub oil system with new brand of oil.

Note

The responsibility of meeting oil quality lies with the oil manufacturer & Cummins will not be responsible for problems occurring on engines due to poor quality of oil.

Grease Recommendations

Cummins India Limited Pune, recommends the use of grease meeting the specifications of MIL-G-3545, excluding those of sodium or soda soap thickeners. Contact lubricant supplier for grease meeting these specifications.

TEST TEST PROCEDURE

High-Temperature Performance

Dropping point, °F ASTM D 2265
350 min.

Bearing life, hours at 300°F. *FTM 331
10,000 rpm 600 min.

Low-Temperature Properties

Torque, GCM ASTM D 1478
Start at 0°F. 15,000 max.
Run at 0°F. 5,000 max.

Rust Protection and Water Resistance

Rust test ASTM D 1743
Pass

Water resistance, % ASTM D 1264
20 max.

Stability

Oil separation, %
30 Hours @ 212°F. *FTM 321
5 max.

Penetration

Worked ASTM D 217
250-300

Bomb Test, PSI Drop ASTM D 942
100 Hours 10 max.

500 Hours 25 max.
Copper, Corrosion *FTM 5309
Pass

Dirt Count, Particles/cc *FTM 3005
25 Microns + 5,000 max.

75 Microns + 1,000 max.

125 Microns + None
Rubber Swell *FTM 3606
10 max.

* Federal Test Method Std. No. 791a