

Example – An oil meets both the API CH-4 and the API CF oil categories. In this case, the API CH-4 applies.

NOTICE

In selecting oil for any engine application, both the oil viscosity and oil performance category/specification as specified by the engine manufacturer must be defined and satisfied. Using only one of these parameters will not sufficiently define oil for an engine application.

In order to make the proper choice of a commercial oil, refer to the following explanations:

API CI-4 – API CI-4 oils were developed in order to meet the requirements of high performance diesel engines that use cooled Exhaust Gas Recirculation (EGR). API CI-4 oils are acceptable if the requirements of Caterpillar's ECF-1 specification are met.

API CH-4 – API CH-4 oils were developed in order to protect low emissions diesel engines that use a 0.05 percent level of fuel sulfur. However, API CH-4 oils may be used with higher sulfur fuels. API CH-4 oils are acceptable if the requirements of Caterpillar's ECF-1 specification are met.

Note: CH-4 oils and CI-4 oils that have not met the requirements of Caterpillar's ECF-1 specification may cause reduced engine life.

NOTICE

Failure to follow these oil recommendations can cause shortened engine service life due to deposits and/or excessive wear.

Note: Refer to Special Publication, SEBU6251, "Caterpillar Commercial Diesel Engine Fluids Recommendations" for additional information that relates to lubrication for your engine.

Lubricant Viscosity Recommendations

The proper SAE viscosity grade of oil is determined by the minimum ambient temperature during cold engine start-up, and the maximum ambient temperature during engine operation.

Refer to Table 4 (minimum temperature) in order to determine the required oil viscosity for starting a cold engine.

Refer to Table 4 (maximum temperature) in order to select the oil viscosity for engine operation at the highest ambient temperature that is anticipated.

Note: Generally, use the highest oil viscosity that is available to meet the requirement for the temperature at start-up.

If ambient temperature conditions at engine start-up require the use of multigrade SAE 0W oil, SAE 0W-40 viscosity grade is preferred over SAE 0W-20 or SAE 0W-30.

Table 4

Engine Oil Viscosities for Ambient Temperatures		
Viscosity Grade	Ambient Temperature	
	Minimum	Maximum
SAE 0W-20	-40 °C (-40 °F)	10 °C (50 °F)
SAE 0W-30	-40 °C (-40 °F)	30 °C (86 °F)
SAE 0W-40	-40 °C (-40 °F)	40 °C (104 °F)
SAE 5W-30	-30 °C (-22 °F)	30 °C (86 °F)
SAE 5W-40	-30 °C (-22 °F)	50 °C (122 °F)
SAE 10W-30	-18 °C (0 °F)	40 °C (104 °F)
SAE 10W-40	-18 °C (0 °F)	50 °C (122 °F)
SAE 15W-40	-9.5 °C (15 °F)	50 °C (122 °F)

Note: Supplemental heat is recommended below the minimum recommended ambient temperature.

S-O-S Oil Analysis

Caterpillar has developed a tool for maintenance management that evaluates oil degradation and the tool also detects the early signs of wear on internal components. The Caterpillar tool for oil analysis is called S-O-S Oil Analysis and the tool is part of the S-O-S Services program. S-O-S Oil Analysis divides oil analysis into three categories:

- Wear Analysis
- Oil condition
- Additional tests

The wear analysis monitors metal particles, some oil additives, and some contaminants.

Oil condition uses infrared (IR) analysis to evaluate the chemistry of the oil. Infrared analysis is also used to detect certain types of contamination.

Additional tests are used to measure contamination levels from water, fuel, or coolant. Oil viscosity and corrosion protection can be evaluated, as needed.