API CJ-4 / Sooted Oil MRV

ASTM D 6896

SPECIFICATIONS

This test is approved for API CJ-4.

TEST METHOD / SUMMARY

A used engine oil sample is heated at 80°C and then vigorously agitated. The sample is then cooled at a programmed cooling rate to a final test temperature. A low torque is applied to the rotor shaft to measure yield stress and a high torque is applied to determine apparent viscosity of the oil.

SIGNIFICANCE AND USE

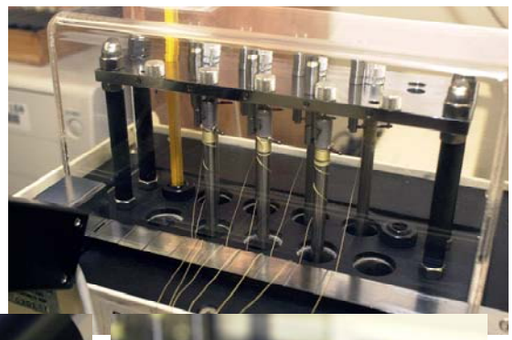
This method measures the yield stress and viscosity of engine oils after cooling at controlled rates over a period of 43 or 45 hours to a final test temperature of –20 or -25°C. The viscosity measurements are made at a shear stress of 525 Pa over a shear rate of 0.4 to 15 s-1. The method is suitable for measuring viscosities ranging from 4000 mPas to > 400,000 mPas and is suitable for yield stress measurements of 7 pa to >350 Pa.

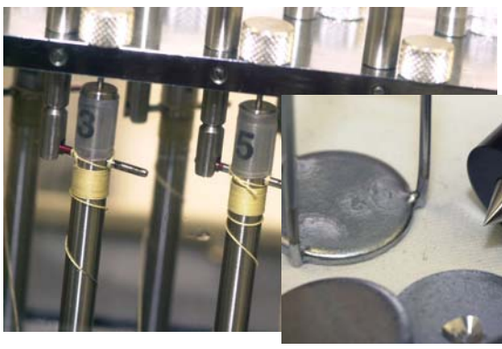
PASS / FAIL CRITERIA

180-Hour sample from Mack T-11 or T-11A	
Viscosity @ -20C, max	25,000 mPa•s
Yield Stress	< 35 Pa

APPARATUS

A mini-rotary viscometer is used. This apparatus consists of one or more viscometric cells in a temperature-controlled aluminum block. Each cell contains a calibrated rotor-stator set. The rotation is achieved by applied load acting through a string wound around the rotor shaft.





DSC 144, 123, 133, 141, 130