



GF-5 / ROBO Test or ASTM Sequence IIIGA Test, ASTM D7528

Aged Oil Low-Temperature Viscosity

SPECIFICATIONS	PROCEDURE PARAMETERS
<p>The ROBO test is a proposed test for performance category GF.5, ASTM D7528.</p> <p>The ASTM Sequence IIIGA Test, ASTM D7320 may be run instead of the above.</p>	<p>A total of 200 grams of test fluid is used for this test at the following conditions:</p> <ul style="list-style-type: none"> • 15 ppm iron ferrocene catalyst • 2 ml high purity nitrogen dioxide (liquid phase) delivered for 12 hrs. • 185 ml per minute of dry air • 200 rpm agitation • 18mm Hg for vacuum • 35-45% loss of volatility • Reaction temperature 170°C • Reaction time 40 hours
OBJECTIVE	CRITICAL PARTS EVALUATED
<p>The ROBO test evaluates the effect of pour point depressants on the low-temperature properties of used oils and replaces a more expensive industry engine test.</p>	<p>N/A</p>
FIELD SERVICE SIMULATED	USED OIL ANALYSIS
<p>N/A</p>	<p>N/A</p>
PROCEDURE FIXTURE	PASS / FAIL CRITERIA
<p>A special test apparatus has been developed for this test.</p> <div style="display: flex; justify-content: space-around;">   </div>	<p>Measure CCS visc of EOT ROBO sample @ CCS temp corresponding to original visc grade:</p> <ul style="list-style-type: none"> - If $CCS \leq \text{max CCS visc}$ for original visc grade, run ASTM D4684 at MRV temp specified in SAE J300 for original visc grade - If CCS visc measured is higher than max visc specified for the original visc grade in J300, run ASTM D4684 at 5°C higher temp - The EOT ROBO sample must show no yield stress in D4684 test and its D4684 visc must be below the max specified in SAE J300 for the original visc grade or the next higher visc grade, depending on the CCS visc



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