

HIGH-TEMPERATURE CORROSION D 6594

SIGNIFICANCE AND USE

This test method is intended to simulate the corrosion process of non-ferrous metals in diesel lubricants. The corrosion process under investigation is that believed to be induced primarily by inappropriate lubricant chemistry rather than lubricant degradation or contamination. This test method has been found to correlate with an extensive fleet database containing corrosion-induced cam and bearing failures.

This test method is used to test diesel engine lubricants to determine their tendency to corrode various metals, specifically alloys of lead and copper commonly used in cam followers and bearings.

TEST METHOD/SUMMARY

Four metal specimens of copper, lead, tin, and phosphor bronze are immersed in a measured amount of engine oil. The oil, at an elevated temperature, is blown with air for a period of time. When the test is completed, the copper specimen and the stressed oil are examined to detect corrosion and corrosion products, respectively. A reference oil is tested with each group of tests to verify test acceptability.



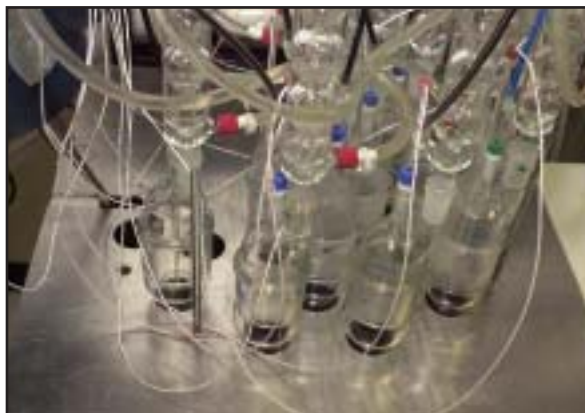
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APPARATUS/TEST FIXTURES

The main apparatus consists of standard wall borosilicate glassware including a main sample tube, a sample tube head, air tube, thermocouple tube, and condenser. Also needed are a metal specimen hanger, adapter, a heating bath, dry air supply, flowmeter, balance, syringe, oven, forceps, thermocouple, and sanding block and holder.

REPORT

The tarnish rating of the copper specimen, based on the high rating (most corrosion) if the rating is different for either side, is reported. The concentrations of copper, lead, and tin in the new oil and stressed oil and the respective changes in metal concentrations are reported.



DSC_0104



DSC_0100

