

Standard Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR)

Significance and Use

Diesel fuel injection equipment has some reliance on lubricating properties of the diesel fuel. Shortened life of engine components, such as diesel fuel injection pumps and injectors, has sometimes been ascribed to lack of lubricity in a diesel fuel.

The trend of HFRR test results to diesel injection system pump component distress due to wear has been demonstrated in pump rig tests for some fuel/hardware combinations where boundary lubrication is believed to be a factor in the operation of the component.

The wear scar generated in the HFRR test is sensitive to contamination of the fluids and test materials, the temperature of the test fuel, and the ambient relative humidity. Lubricity evaluations are also sensitive to trace contaminants acquired during test fuel sampling and storage.

The HFRR may be used to evaluate the relative effectiveness of diesel fuels for preventing wear under the prescribed test conditions. Correlation of HFRR test results with field performance of diesel fuel injection systems has not yet been determined.

This test method is designed to evaluate boundary lubrication properties. While viscosity effects on lubricity in this test method are not totally eliminated, they are minimized.

Source: <http://www.astm.org/Standards/D6079.htm>

