

## PERFORMANCE TESTS

# ASTM D7216-05 Elastomer Compatibility Test

This is the standard test method for determining automotive engine oil compatibility with typical seal elastomers.

### SCOPE

This test method covers quantitative procedures for the evaluation of the compatibility of automotive engine oils with four reference elastomers that are typical of those used in the sealing materials in contact with these oils. Compatibility is evaluated by determining the changes in volume, Durometer A hardness and tensile properties when the elastomer specimens are immersed in the oil for a specified time and temperature.

Effective sealing action requires that the physical properties of elastomers used for any seal have a high level of resistance to the liquid or oil in which they are immersed. When such a high level of resistance exists, the elastomer is said to be compatible with the liquid or oil. The four reference elastomer formulations specified in this test method were chosen to be representative of those used in heavy-duty diesel engines. The procedures described in this test method, however, can also be used to evaluate the compatibility of automotive engine oils with different elastomer types/formulations or different test durations and temperatures to those employed in this test method.

### TEST CONDITIONS

Test procedure	Variation of gear lube test
Test length	20 days (336 hours)
Test temperature	100°C for Nitrile seals 150°C for Silicone Polyacrylic and FKM seals
Seal measurements	Volume swell Hardness change Tensile strength change Elongation change

### KEY CURRENT ACTIVITIES

There will be further discussion and resolution in ILSAC/Oil.