

PC-9 Elastomer TF Report to ASTM D02.B0 HDEOCP
July 11, 2001

- TF Meeting held in Columbus IN July 10 – Reached the following Conclusions and recommendations
 - A different statistical method was proposed to the TF for determining if a candidate oil is no worse than a reference oil. This method needs some further refining and will be w-mailed to the TF after refinement for further evaluation
 - The TF concluded that no one, two, or even 3 reference oils will adequately measure all critical parameters.
 - Some parameters have such small changes that comparison to a reference oil is inappropriate.
 - A reference oil will only protect on one side of a parameter
 - No one or two oils are the worst performers for all elastomer types all parameters
 - TMC 1006 (SF 105) comes closest or n ideal reference oil –it is the most aggressive oil in 3 elastomer types
 - Based on the notes above the Task Force Recommendations are given in the accompanying table
 - This method only works if we have a referee body for evaluating the significance of results outside the specified limit range which may be caused by changes in elastomer batches or other causes – And be accomplished rapidly – OEM representatives at the meeting believe the EMA can fulfill this role
- Test procedure will be balloted for standardization by D11.15
- A standing panel should be formed under D02.B0 Bench Test Surveillance Panel

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Summary of the PC-9 Elastomer Test Method

Four (4) elastomer types are immersed in the candidate oil and reference oil simultaneously using the same bath for 336 hours (14days).

There are 6 specimens for each elastomer type that are aged in each oil. Thus results from the candidate test for each elastomer are an average of 6 specimens and allows for the use of statistics. The reference oil that is being run simultaneously also is an average of 6 specimens.

The 4 elastomer types and the temperatures at which the specimens are aged at are:

Nitrile 100C

Fluoroelastomer 150C

Silicone 150C

Polyacrylate 150 C

The aged elastomers are measured for

% Volume change

Points hardness change

% Tensile Strength change

% Elongation change

The elastomers are from controlled batches distributed by a CPD

The reference oil is also controlled and distributed by the TMC