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RESEARCH & DEVELOPMENT LABORATORY REPORT

TITLE

Evaluation of Parker Compound FF400-80

DATE

May 10, 2013

REFERENCE

LTR93341

PREPARED BY:

Deric Greger Lab Tech III CONCURRENCE

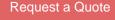
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Research & Development Laboratory Report Evaluation of Parker Compound FF400-80 May 10, 2013

TITLE:

Evaluation of Parker Compound FF400-80

OBJECTIVE:

Provide basic mechanical properties for new compound FF400-80

METHODS:

The following standard ASTM test methods were used to measure

the original physical properties, compression set, chemical compatibility, and TR-10 and glass transition. ASTM D1414, ASTM D395, ASTM D471, ASTM E1356, and ASTM D1329

DISCUSSION:

Parker compound FF400-80 in the nomenclature described in ASTM D1418 as an FFKM material. The subject compound exhibits very low temperature performance as determined by the

TR-10 and the glass transition via differential scanning

calorimeter. Additionally, the subject compound has very good compression resistance up to 250 °C. FF400-80 also exhibits good

chemical compatibility in the fluids tested. (Table 1)

CONCLUSIONS:

Parker compound FF400-80 is a new low temperature FFKM developed for demanding applications in aggressive chemical environments that require good to excellent low temperature performance. The steam and ethylene di-amine were chosen as the test media due to their aggressive behavior towards FFKM materials, as seen in the data FF400-80 performs very well in steam and reasonably well in ethylene di-amine. In summary FF400-80 offers excellent low temperature performance and very

good compression set resistance up to 250 °C

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Table 1

Table 1			
Original Physical Properties Hardness, Shore A, pts. Tensile Strength, psi Ultimate Elongation, % Modulus at 25% Elongation, psi Modulus at 50% Elongation, psi Modulus at 75% Elongation, psi Modulus at 100% Elongation, psi Specific Gravity	Test Method ASTM D2240 ASTM D1414 ASTM D1297	r r r r	Test Results 82 1354 188 251 414 620 844 1.85
Compression Set 70 hrs. @ 200°C Percent of Original Deflection, max	ASTM D395 Method B	,	25
Compression Set 70 hrs. @ 230°C Percent of Original Deflection, max	ASTM D395 Method B		27
Compression Set 70 hrs. @ 250°C Percent of Original Deflection, max	ASTM D395 Method B		29
Fluid Immersion Steam, 70 hrs @ 121°C Hardness Change, pts. Tensile Strength change, psi Ultimate Elongation change, % Modulus at 25% Elongation change, psi Modulus at 50% Elongation change, psi Modulus at 75% Elongation change, psi Modulus at 100% Elongation change, psi Volume Change, %	ASTM D471		+2 +11 +5 +4 +8 +9 +9
Fluid Immersion Ethylene Diamine , 70 hrs @ 90°C Hardness Change, pts. Tensile Strength change, psi Ultimate Elongation change, % Modulus at 25% Elongation change, psi Modulus at 50% Elongation change, psi Modulus at 75% Elongation change, psi Modulus at 100% Elongation change, psi Volume Change, %	ASTM D471	•	-10 -47 +38 -44 -45 -53 -58 +23
Low Temperature TR-10, °C	ASTM D1329	r	-30
Glass Transistion by DSC °C	ASTM E1356	r	-35

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