Elastomer Testing Services

The objective of the testing services is to define the basic material properties of elastomeric materials.

1. Basic Hyperelastic Properties

3 simple tension specimens, 3 planar tension specimens and 3 equal biaxial specimens are cut from the provided slabs. The specimens are loaded slowly between zero force and a user defined stretch level for 5 loadings and unloadings at up to 4 maximum strain levels, to examine the initial stress strain behavior and the “stabilized” stress strain behavior at each of the maximum strain conditions. (5 slabs measuring 150 mm by 150 mm by 1.0 to 2.0 mm thick are required for each temperature condition)

2. Volumetric Compression

A specimen is fully constrained and compressed for the purpose of determining the Bulk Modulus of the material. 6.35 mm diameter disks are cut from standard slabs and stacked. The initial slope of this curve is the Bulk Modulus.

3. Short Term Stress Relaxation Properties

A specimen is stretched to a set strain and held. Stress and time data is collected continuously for a short time. 3 specimens are tested. Simple tension is typically used. This test can be expanded to include multiple strain levels or strain rates.

4. Rate Sensitivity

The rate or speed at which a stress is applied to an elastomer will alter the response of the material. This effect becomes measurable with order of magnitude rate changes.

5. Friction

To measure the coefficient of friction, a 50 mm by 100 mm sled with one material is dragged against a larger second material. Required Materials: a.) Material sheets or plaques greater than 50mm x 150mm for the sled; b.) Materials greater than 100mm x 500mm for the base.

6. Static Tearing

The static tearing experiment is a meaningful way to examine the failure of an elastomer in tearing. A sharp cut is introduced into a planar tension specimen and the specimen is stretched until the cut increases.

7. Thermal Properties

Thermal conductivity, thermal diffusivity and specific heat are determined using the transient plane source method.

Thermal expansion is determined by examining the dimensional change in a material specimen TMA.

8. Elastomeric Material Model Calibration Services

The coefficients are determined for an appropriate elastomeric material model and the resulting fit is reported and compared with the experimental test data. Simple models and complex models like the Abaqus Parallel Rheological Framework PRF models are available.

9. Material Preparation Services

Preparing specimens from supplied material slabs is free of charge. To cut specimens from parts or slabs thicker than 2 mm, a fee for skiving services is involved.

General Pricing for Elastomer Testing Services

Prices are shown in US Dollars	Lab Temp (23°C)	-40°C to 200°C	37°C in Saline
1. Basic Hyperelastic Properties *typically 5 loadings and unloadings at each of max. 4 strain levels, or single loading*			
Dense Elastomers	***TOTAL 1450***	***TOTAL 2151***	***TOTAL 2900***
3 Simple Tension Tests	265	396	530
3 Pure Shear Tests	395	565	790
3 Equal Biaxial Tests	790	1190	1580
2. Volumetric Compression (Bulk Modulus) *(3 tests)*	395	565	—
3. Standard Short Term Stress Relaxation			
3 Tension Relaxation Tests (2000 seconds, 1 strain level)	315	446	580
3 Fast (10/s) Relaxation Tests (100 seconds, 1 strain level)	550	825	1100
4. Rate Sensitivity Set in Tension *3 test sequences at 0.01/s 1/s, 10/s, 50/s*	1325	1980	—
5. Basic Friction-sled Test *(see Friction Test pricing for others)* *3 tests at a single pressure less than 0.006 MPa - Dry*	344	431	1040
6. Static Tearing for Critical Tearing Energy *(3 tests)*	450	675	790

7. Thermal Properties	
Thermal Conductivity, Thermal Diffusivity, Specific Heat *at 1 temp between –40C and 150C, 3 repetitions*……..	440
Thermal Conductivity, Thermal Diffusivity, Specific Heat at *5 temps between –40C and 150C, 3 repetitions*…….	1130
Thermal Expansion *from –40C to 150C, 3 repetitions*……..	410
8. Elastomeric Material Model Calibration Services	
Determine Model Coefficients for Hyperelastic Models (i.e. Yeoh, Mooney Rivlin, Ogden)..……..	925
Determine Model Coefficients for Hyperelastic Models (i.e. Yeoh, Mooney Rivlin, Ogden) + Mullins..……..	975
Advanced Model (i.e. Hyperelastic + Mullins + Viscoelasticity)……..	1125
Hyperelastic plus Mullins plus Plasticity……..	1210
Parallel Rheological Framework model for Abaqus……..	1210
9. Material Preparation Services	
Skiving Parts into Materials *(price per project)*……..	625

November 2026. Pricing subject to change.

Notes:
a. Data is provided in SI units of MPa for stress and non-dimensional strain. The data is delivered via e-mail in an ASCII format.
b. Customer data and materials will be retained for 1 year after initial data delivery.

Purchase order, credit card and wire are accepted methods of payment.
Terms: NET 30 Days after Delivery of Data.

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