

Title: Tensile Creep and Creep Rupture of Plastics, Rubber, Elastomers, and Composites under Specific Environmental Conditions

Summary: Long term creep tests are performed either in tensile or compression mode. Data from creep and creep-rupture tests are necessary to predict the creep modulus and strength of materials under long-term loads and to predict dimensional changes that may occur as a result of such loads.

Description: Long term creep tests are performed either in tensile or compression mode. At Associated Polymer Labs creeps tests are performed using individual fixtures. APL has the capability to test samples in triplicate, at two loading, and three temperatures, at the same time. This means you can have 18 samples tested simultaneously and obtain more information.

APL has an extra tall oven for testing elastomers and rubbers. We can measure a three inch sample extend to 12 inches. Six samples can fit into the oven, and all can have different loadings.

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specimen is mounted into the oven, without a load, and allowed to equilibrate. The initial length is measured again. The proper weights are applied within one minute and the length measured at 1, 2, 6, 12, 30, and 60 minutes. Another 10-15 measurements are made during the next 1000 hours.

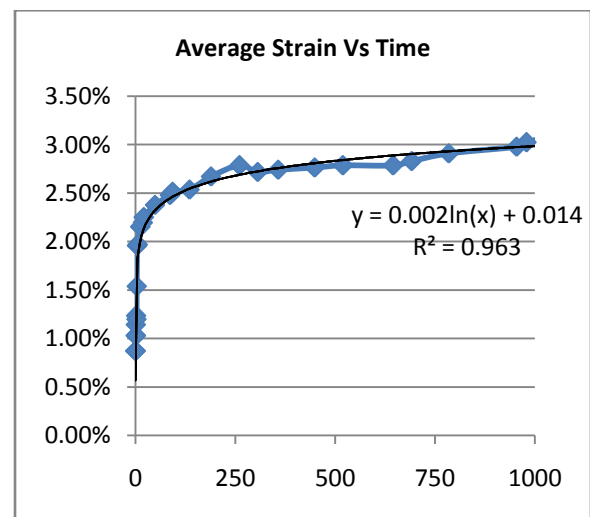


Photo 1. Extended Oven Tensile Fixture



Tensile Experiment Overview:

Long rectangular specimens are used and held using grips. The initial length is measured after setting the specimen in the fixture. The

Key Words: Mechanical test stands, long term creep, creep rupture, Tensile, Compression, Viscoelastic, Prediction of long term material behavior.