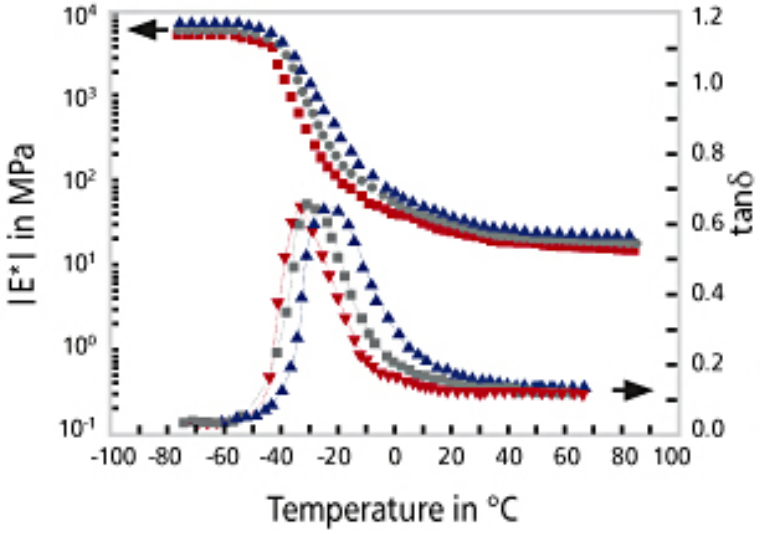
APPLICATION**SHEET**

Elastomers – DMA EPLEXOR®

Temperature Sweeps with Several Testing Frequencies

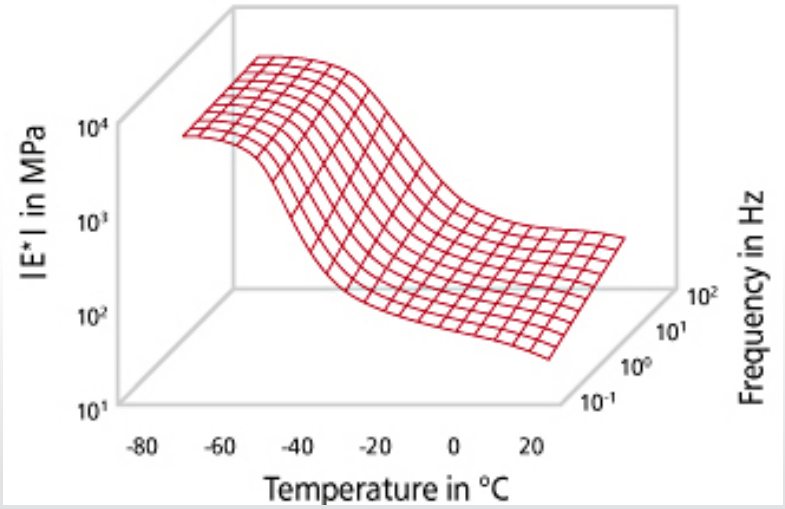
One investigation = triple information! Save time and money and gain additional data about your materials in one measurement – this can be achieved with multifrequency temperature sweeps. Carry out one temperature sweep and consecutively test with up to 3 frequencies. At the end of a sweep, you will thus get up to 3 complete data files, which clearly document the frequency and temperature dependence of your materials.

So make 3 out of 1!



3-Dimensional Display of the Temperature-Frequency Dependency of an Elastomer System

The illustration shows the 3-dimensional plot of the complex modulus of elasticity as a function of temperature and frequency. Characteristic is the shifting of the glass transition with increasing frequency to higher temperatures on the temperature scale. The dynamic range of softening processes during the glass transition can be >3 orders of magnitude and is dependent on frequency and temperature. Knowledge of the frequency and temperature dependence of dynamically loaded components (e.g., tires, dampers) is nowadays an essential part of application development.



NGB · Application Sheet 267 · EN· 08/17 · Technical specifications are subject to change.

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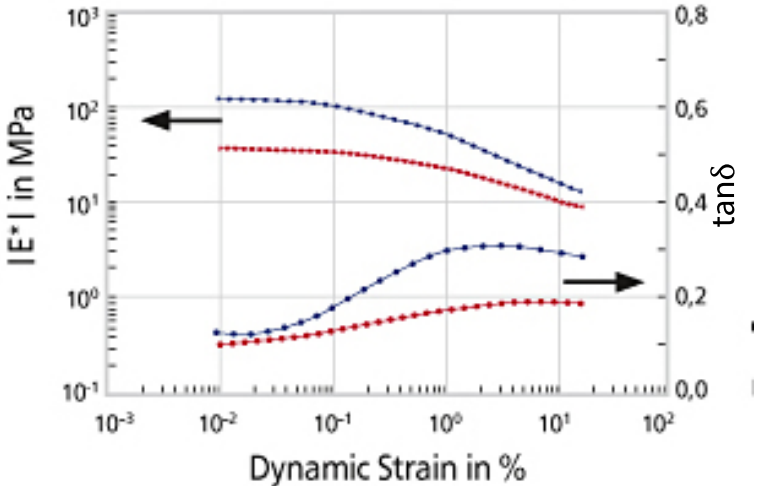
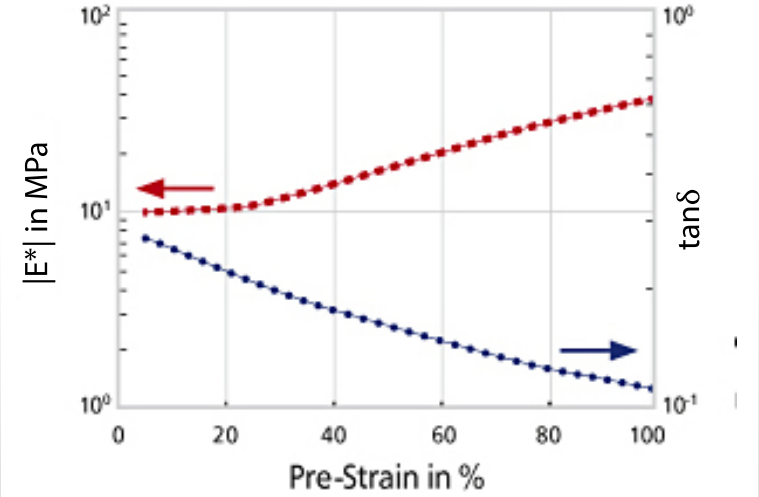
Strain Dependence of Filled Elastomers

The figure shows the dependence of the complex modulus of elasticity and damping tanδ from the deformation amplitude applied. Significant is the decline of the complex modulus of elasticity as well as an increase in damping tanδ with increasing strain amplitude. The curves provide information about the transition from linear to non-linear sample behavior. This kind of data is absolutely essential for application-oriented technical product characterization.



Pre-Strain Dependence of Elastomer Systems

Dynamic vibration test at pre-strains of 5 % to 100 %. Displayed is the line shape of the complex modulus of elasticity and damping tanδ in dependence of the pre-strain. In tension experiments, dependence of the measuring results from the sample geometry (form factor) can be avoided by appropriate sample selection (sample length should be significantly longer than the thickness and width). Our testing technique permits static pre-strains on samples of 100% and more. Characteristic is the increase in complex modulus of elasticity and a decrease in damping with a rising pre-strain (dyn. strain amplitude: constant).



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