PORON® Polyurethane Material: Density vs. Firmness

Many material suppliers use density as a main property to differentiate between different material firmnesses. Rogers employs another approach with the product portfolio of PORON® polyurethane materials, allowing for a broader range of material options that can meet almost any design requirement.
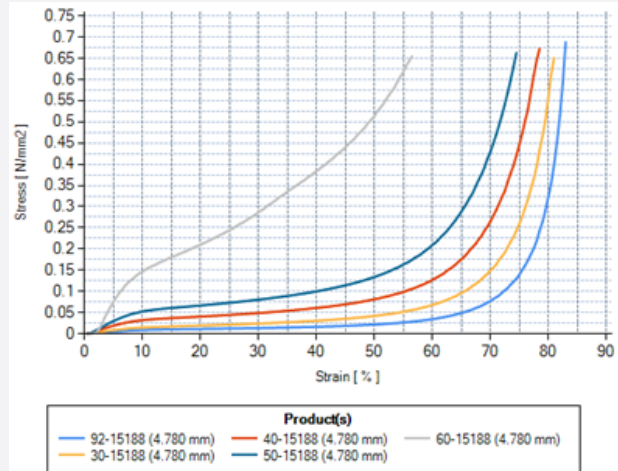
Density

Density is a measure of mass per volume. The value is calculated simply by weighing a known volume of the sample. For example, to calculate the density of a PORON material, a 3 inch disk could be cut and the thickness of that disk would be measured. The volume would be calculated using the equation $V=\pi r^2 * h$, where r=radius of the disk and h=thickness.

Density is then calculated using Density=M/V where M=mass of the sample.

Firmness

The firmness of a material is usually measured and determined using durometer or Compression Force Deflection (CFD). Rogers Corporation uses CFD as the main firmness measurement scale for PORON materials. Visit the Rogers website - www.rogerscorp.com - to learn more about these two measurement methods and why Rogers chooses CFD over durometer.

Density vs. Firmness

Rogers does not solely rely on density to differentiate between the wide range of firmness options available in the PORON® polyurethane suite of products.

The Rogers Research and Development team utilizes material chemistry and formulating to develop a broad range of material options that range from very soft to very firm, regardless of material density.

Simply put, this means materials have the same exact density, but vastly different firmness measurements. The chart above illustrates the CFD values of various different PORON formulations, all with the same density.

![ROGERS CORPORATION logo]