



Did You Know?

What is Hardness anyway?

When selecting a material based on hardness for thermal management, it is important to understand and appreciate the differences in these scales so that a material with the desired properties is selected.

Hardness is a physical property of a material and is defined as its resistance to indentation. It is typically used to quantify the hardness of polymers and elastomers and is an important factor in the performance of thermal interface materials.

Named after Albert Ferdinand Shore, the Shore hardness scales are an industry standard for measuring hardness of materials that vary all the way from gel like materials, up to hard plastics and rubbers. Since there is so much variation in the hardness of polymers and elastomers, there are different scales on which hardness is quantified.

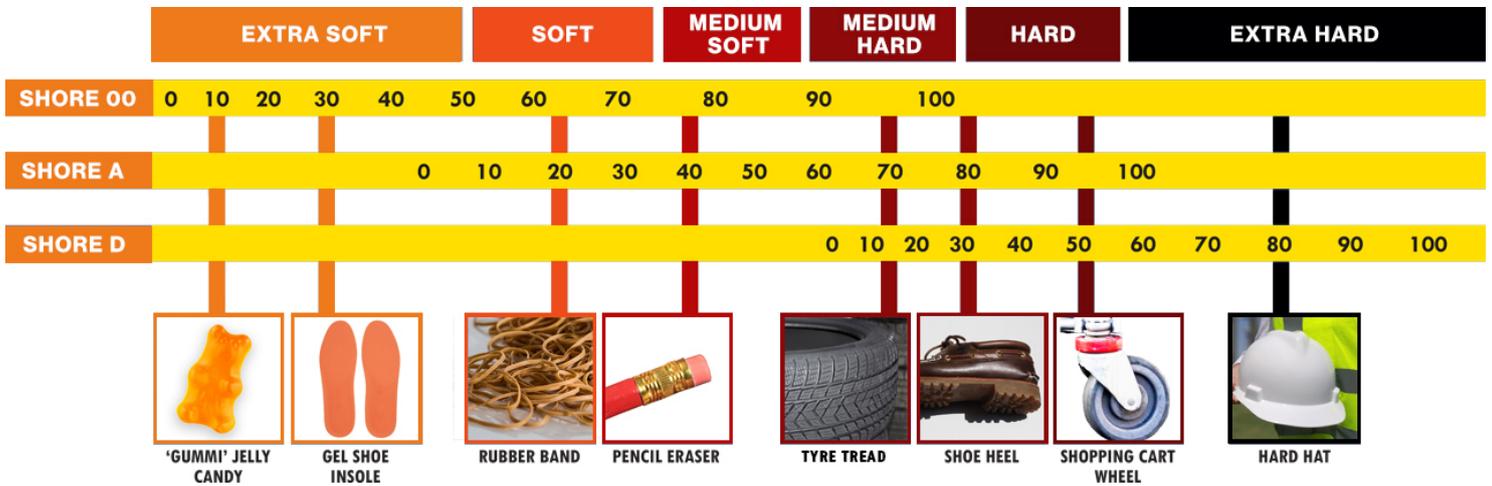
The resistance to indentation (hardness) is measured by applying a known force onto the material using an indenter of specific geometry and measuring the resulting depth of penetration. The geometry of the indenter and the force applied are two of the test variables that are changed that give rise to the different Shore hardness scales.

Amongst the many Shore hardness scales are Shore OO and Shore A, primarily used for softer materials. These are the most common in the field of thermal management since soft materials carry with them several advantages over harder materials. However, the Shore OO and A scales use a different methodology. Therefore, they are not directly comparable. Although not directly comparable, it is common practice to use a basic table such as the one below to estimate the hardness across different scales.

All Shore hardness scales range from 0-100, the lower the number, the softer the material on the given scale.



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