

Glossary of Testing Terms for Protective Rubber Lining

Below are common tests that all Rubber Source Protective Rubber Linings are subjected to:

Tensile: Tensile strength is the maximum tensile stress reached in stretching a test piece (either an O-ring or dumbbell). Tensile tests are used for controlling product quality and for determining the effect of chemical or thermal exposure on an elastomer. In the latter case, it is the retention of these physical properties, rather than the absolute values of the tensile stress, elongation or modulus, that is significant.

Elongation: The term "elongation" is used to describe the ability of a rubber compound to stretch without breaking. To describe this property as measured it is more accurate to speak of "ultimate elongation" or "elongation at break" since its value, expressed as percent of original length, is taken at the moment of rupture. (ASTM D-412)

Durometer: Hardness as a property of rubber is difficult to define except according to the methods used to determine it. These methods measure the resistance of the stock to indentation by the blunt point of a metal rod, ball, or needle. Thus the hardness of rubber can best be described as resistance to indentation. Various instruments measure indentation. The most common instrument used on rubber is the Durometer. Several scales are used depending on the hardness range (00, 0, A, B, C, D) but the A scale is used for most compounds. Readings on each scale are from 0 to 100. Durometer hardness is a convenient non-destructive method of testing which can also be correlated to other properties such as tensile strength, tensile modulus and resilience. Since indentation hardness is dependent upon elastic modulus and viscoelastic behaviour of the compound, rubber compounds which are not completely elastic will "creep" during the test. This creep should be posted as the difference between the initial hardness reading after fifteen seconds of contact with the specimen. A properly noted reading: Durometer A61 points; creep minus 4 points at 15 Seconds, 73°F. (ASTM D-2240)

Rheometer: The resistance to growth of a nick or cut when it is applied to a test specimen. (ASTM D-624.) Expressed as pounds per lineal inch.

Din Abrasion: The resistance to surface loss of a rubber material due to frictional forces. (ASTM D-2228)

Tear Strength: The resistance to growth of a nick or cut when is applied to a test specimen. (ASTM D-624.) Expressed as pounds per lineal inch.

Specific Gravity: The ratio of the weight to the given bulk to that of the same bulk of water (solids and liquids.)