

### CURED PHYSICAL PROPERTIES NOMENCLATURE

**Cure Time** – defines the point at which the polymer reaches its ultimate strength including tensile strength, elongation and tear. Temperature will vary the cure time. The cure time will be shorter in hotter temperatures and be longer in colder temperatures.

**Demold Time** – defines a point in the curing cycle at which the polymer has reached enough strength so as to be removed from its original containment and remain undistorted.

**Density** – defines the relative weight of the material as compared with water. By definition, water has a density of 1.00 (8.337 pounds per gallon). One gallon of any liquid has a mass of 231 cubic inches. Therefore a cubic inch of water weighs 16.4 grams. Most of our soft flexible elastomers weigh approximately 8.7 pounds per gallon or 17.1 grams per cubic inch. When computing cubic inches per pound of individual resins for price considerations, it is best to refer to individual tech data sheets.

**Elongation** – defines the point at which the polymer is stretched to its ultimate length before breakage.

**Gel Time** – defines the time at which the material becomes unusable.

**Hardness** – is defined as a durometer measured from 0 to 100. They're are two scales of which durometer is reported in, a Shore A and a Shore D. Shore A scale is exclusively used for soft to medium hardness rubbers. Harder plastic like polymers are defined by the Shore D scale. Shore A & D scale extend from 0 to 100. For example, Shore A hardness of 0 is like the outer skin of a peeled tomato. Shore A 50 is like a soft sole of a tennis shoe, while Shore A 90 is like a tough durable rubber that resist bending. Where Shore A ends, Shore D begins with some slight overlap.

**Rheology** – defines a liquids flow characteristics. An ideal liquid poured on a flat surface flows out to a smooth level profile. Liquids that are thixotropic (i.e. PC-40 Thixo) do not flow out but remain thick and in position on vertical or over head surfaces.

**Shrinkage** – defines the contraction of the polymer as it transitions from a liquid to a solid mass. Also, shrinkage may continue during usage or storage of the finished mold. Softer urethane rubbers cure with less heat and less shrinkage and rigid or harder urethanes cure with more heat and have greater shrinkage. As a general rule, the larger the mass the more shrinkage occurs due to more heat by the curing process.

**Tear Strength** – defines the strength of ultimate force required to begin destruction of the polymer by a tearing process. The softer the polymer, the easier it is to tear or the lower the tear strength.

**Tensile Strength** – defines the ultimate force which is needed to begin the tearing process of a polymer when it is stretched to its physical limits

**Thixotropic** – means that the material is thick enough to support itself on a vertical or overhead surface.

**Viscosity** – defines whether a liquid is thick or thin. It is measured in centipoises (cps). For example, Water is has a liquid viscosity of 1 cps; maple syrup is – 1000 cps; while mayonnaise is 50,000. At higher temperatures liquid viscosities are lower and lower temperatures the liquid viscosities are higher. For ideal results, material should be maintained and used at 72 degree f.

**Working Time (i.e. pour time or pot life)** - defines the usable time the material will stay liquid long enough to be easily manipulated into place.

### SAFETY PRECAUTIONS

**Please read the Material Safety Data Sheet before using any Precision Converting product. If you have any questions regarding the MSDS, please contact us at 800-999-0984 or if transportation spill call CHEMTREC at 800-424-9300.**

**Please read the Mixing and curing section and follow directions before starting a project with our material.**

**Please use equipment such as protective eyewear and gloves in a well ventilated room while working with the Prethane systems.**

**Any compound that has not been cured should be handled with care. It may cause respiratory problems or skin irritation if it is not properly handled.**

**Do not dispose of any Precision Converting product that has not been properly cured.**

**In case of eye contamination, flush well with plenty of water and contact a physician.**