

MOULD MAKING AND CASTING -



When selecting from the extensive range of RTV silicones and resins available for moulding & casting, it is handy to understand the “jargon” ... the language of the industry and how they apply to your decision.

POT LIFE / WORKING TIME / GEL TIME – how much time between the start of mixing of the two components and when it begins to gel (thicken / cure). It is recommended your casting compound be in place before this time to ensure good flow into detail areas of the mould and to allow plenty of time for air bubbles to dissipate. Pot life can vary from 60 seconds to 6 hours.

DEMOULD TIME – De-mould is the exciting part. This is when you get to remove your mould or cast. The de-mould time denotes earliest recommended time a cured product can be removed, when used at stated environment. De-moulding pieces too early can cause damage to a mould or cast, causing fine detail to be missing and shortening mould life. De-moulding pieces as early as possible (but not too early) can help extend mould life.

CURE TIME – Now, I know this might sound confusing but, full curing of a mould or cast is not necessarily the same time as de-mould cure time. Cure time is the necessary time for the product to fully establish its properties. For eg., A silicone mould can be ready for de-mould in 24 hours, however, it is recommended to allow the mould to fully cure for seven days. Allowing the mould to fully cure gives maximum mould life. However, most times, this is not absolutely necessary, which is convenient, as not too many of us have that kind of patience. Read the instructions that come with your product to establish the necessary cure time.

MIX RATIO – The mix ratio refers to the proportion (by weight or volume) of how much Part A to mix with Part B for the product to cure (harden). If your product is measured by weight, you will require a gram scale (scale that measures by 1 gram increments) for accuracy. Just as if your product is measured by volume you will need to use containers with 1ml measures.

Mix ratios will vary depending on the product being used. Most hobby/craft use products will have a mix ratio of 100:10 or 100:100. Ensure that when purchasing your product you have details of your mix ratio. Guessing this ratio will only lead to the product not achieving the desired results (and most times, a mess to clean up!)

VISCOSITY – is how “thick” the product is in liquid form. Viscosity is measured in centipoise (cps). A low viscosity (10cps) is a very liquid product. A high viscosity (250,000) is thick and is usually a brushable product. Some products will list the viscosity of both Part A and Part B prior to mixing as well as the mixed viscosity.

Comparing Viscosity –
 1cps = water
 10 000cps = honey
 25 000 cps = motor oil

Generally, the type of mould you are making will be a determining factor in choosing the viscosity (pourable or brushable) of your product choice. Keep in mind also, when using a highly viscous product, it may be prone to air bubbles. These particular products may require degassing (removing the air by vacuum) to achieve good results.

This Tech Sheet brought to you by
ACCESS RESOURCE GROUP trading as



www.armsmodelit.com.au
Ph: (07) 3284 1111 Fax: (07) 3284 9976

SHORE HARDNESS – designates the “hardness” of the cured compound. Shore Hardness has only two grades –

- “A” shore hardness is flexible
- “D” shore hardness is rigid.

Mould making compounds are normally flexible and will have an “A” shore hardness (eg 25A). This flexible shore hardness is applicable to both Silicones and Polyurethanes. If it has an “A” shore hardness it is a flexible product.

12A shore hardness – floppy, like skin

20A has medium flexibility, like an art gum eraser

55A has firm flexibility, like a radiator hose. Resins (excluding the flexible ones) are measured with a “D” shore hardness, being rigid. There are a variety of rigid resins available to simulate numerous

45D compares similarly to moulded plastic ends & plugs

70D compares with Skate Wheels

85D is similar to computer casings.

ELONGATION – is the length that a product will stretch before breaking. This is usually stated as a percentage.

SHRINKAGE – is the percentage a product will reduce in size after a stated time period. Products which exotherm (produce heat) whilst curing tend to shrink, even minutely, as they cool.

TEAR STRENGTH – is the measured force needed to tear or split a “rubber” material. Flexible products with a higher elongation generally have a higher tear strength.

TENSILE STRENGTH – is the reported pound force required to break a piece of material when pulled.

HEAT DEFLECTION – is the temperature at which a product may begin to reanimate (soften). Unsupported, long, thin resin casts are prone to “drooping” if stored where temps may reach higher than the stated heat deflection.

This Tech Sheet brought to you by
ACCESS RESOURCE GROUP trading as



www.armsmodelit.com.au
Ph: (07) 3284 1111 Fax: (07) 3284 9976