

RESIN CASTING

PATTERN - Purpose

- Design
- Materials - metal
 - styrene
 - Plexi
 - Wood *ONLY if well sealed.

MOULD - Design - one or two part ?

- Core Box - matl
 - fixing methods
 - size
- RTV - measurement → accurate weigh-scale
- mix (10:1 ratio)
- de-air - vacuum chamber (luxury!!)
 - slow cast..... Cure in 18-24 hours.
 - surface coat??
- de-mould → out-gas 6-12 hours.

CASTING - material Polyurethane vs. Polyester

- Talcum Powder as a lubricant = fewer bubbles.
- * Pot Life
- measure (usually 1:1 ratio)
- mix → 30-40 seconds
- cast → from one point
- de-air → probe \bar{c} toothpick
- de-mould - avoid damaging the mould.

* Use rubber (Latex) gloves when handling resin or RTV

Useful sites :

www.sculpturesupply.com

www.smooth-on.com

www.modelbuilderssupply.com

www.alumilite.com

Most excellent !!
- videos, product comparisons
tech support ...

Resin Casting Workshop - Mar. 23 / 2011

Polyurethane Resin is easily obtained in small, modeller-friendly quantities, is easy to use and is easy to clean up. It is an ideal material for casting duplicate parts and can save many hours of repetitive labour. However, it is not cheap, and it does have a shelf-life (6 - 8 months) so it is wise to plan carefully for its economical use.

Resin casting has three major steps - Pattern, Mould and Casting.

Pattern:

A finished casting can be no better than the original pattern: it must be finished to the highest degree possible. Any imperfection in the pattern will be repeated in every casting.

Some consideration needs to be made to designing the pattern: If it can be made in one piece or if it might be wiser to make the pattern in two (or more) pieces, and then assemble the casting later.

Patterns can be made of metal, plastic, plexi-glass - virtually any stable, non-porous material. Wood can be used, but it must be well sealed before it can be used for mould-making.

Mould:

Room Temperature Vulcanising Rubber (RTV) is currently the most commonly used material for mould-making. It is quite easily obtained in small quantities, is quite easy to use, and provides excellent results. However, it too is expensive and has a shelf-life (6 - 9 months) so a casting project needs careful planning.

Most modellers can get the results they want from a simple one piece (open cavity) mould. A two-part mould is a more sophisticated affair and requires a bit more planning but is not beyond the capabilities of the average modeller.

The Core Box is the box in which the mould will be made. It needs to be leak-proof and sturdy enough to contain a quantity of (very dense) RTV, but this is not difficult to achieve. Any non-porous material can be used (not wood!!) and it can be fastened with masking tape, rubber bands or simple clamps. The base of the box can be sealed with tape or modellers' clay (not putty).

Dimensions depend on the size of the pattern. Generally, the mould should be 1/4 - 1/2 inch bigger all around than the pattern.

Accurate measurement of the RTV components is essential - an accurate weigh-scale is a good investment. Most RTV rubbers are mixed in a ratio of 10:1 (Rubber : Activator).

If the pattern has a lot of surface detail, it is wise to brush on a surface coat of RTV, and then follow that by slowly pouring the rubber into the core box in such a way as to encourage the RTV to "push" air away from the pattern. Cure times vary from product to product, but most RTV rubbers are "cooked" in 18 - 24 hours.

Casting:

Casting is the easiest part of the process. Most hobbyist-grade resins have a very short "Pot Life", so it is necessary to work quickly - organizing tools, material, and space is helpful.

*Before casting any resin it is a good idea to "lubricate" the mould by lightly dusting it with real, natural TALCUM POWDER (not the cornstarch variety). Shake off the excess and the mould is ready to use. Mix equal quantities of Parts A and B for 30 - 40 seconds and then cast the resin into the mould. Quickly probe the cavity with a toothpick or metal rod to loosen air bubbles and within 3 minutes the part should be cured, ready for demoulding.

Produce Info and Sources:

1) POR - A - KAST

Sculpture Supply Canada
345 Munster Ave.
Toronto M8Z 3C6

416 223-1075
Toll Free 866 285-5509

www.sculpturesupply.com

Aboveground Art Supplies
74 McCall St.
Toronto M5T 3K2

905 677-1052

2) SMOOTH-ON CASTING RESINS

www.smooth-on.com

3) ALUMILITE

via Model Builders' Supply

www.modelbuilderssupply.com

* available at Niagara Central Hobbies.

www.alumilite.com