

Liquid Latex – Basic Instructions.

General Latex Mould Information

Latex makes the thinnest, most elastic and strongest mould of any type of mould making rubber. It can be pulled over relatively large undercuts when releasing the model without tearing.

The strongest moulds are made by brushing on thin layers of latex. The number of coats can vary from 8 to 20 or more depending on the size and purpose of the mould. A simple mould of a chess set piece about 15cm high would normally take about 8 to 10 coats, each coat applied, then let to dry in a warm area until the white colour disappears before applying the next coat. About an hour or so between coats would be normal. To speed things up you can use a fan driven radiator or hair dryer to dry the water in the latex. The colour changes to an amber rubber colour.

Latex cannot be poured or applied in thick sections, it will not cure. Your mould when completed will be quite thin and if above say 15cm in height will require a back-up mould to support its shape when casting.

Latex uses

Ideal for casting plaster, concrete but can also be used for limited casting of some resins. As a white brush-on liquid, after multiple applications it builds up to a mould thickness of 1 to 3mm that air vulcanizes to a light amber colour. This forms a very tough, blanket mould with great elasticity.

Latex has a better tear strength than all synthetic rubbers and is preferred by the concrete and plaster shop industry when used as a sock mould or one that peels off a casting, just like you pull a sock off your foot. However the polyurethanes are catching up fast and are in use for concrete press moulds, where a final thickness can be brushed on in half a day.

How to seal your model

Wherever possible make your models in plaster. Plaster is porous and does not need a sealer or release agent. Also latex peels off the model quite easily.

This does not apply to all porous items particularly wood, which due to its fibrous nature can cause problems unless you seal the surface. You can seal with several coats of paste wax or by spraying with lacquer, shellac followed by a coat of release agent.

Wax, glazed ceramics or glass do not need sealing or application of a release agent. Avoid petroleum-based products, solvents and oils as they are not compatible with latex and will cause its degradation over time. If in doubt test a small area to see if it releases satisfactorily.

Making a Mould Using Brush Method.

Latex may be used to make moulds from masters (originals) made from various materials such as plaster, clay, glass and concrete. Ensure the masters are clean, dry and free of grease or oil. Except for plaster models, masters may be washed in a solution of dishwashing liquid and water and dried before latex application.

Fasten the master to a firm non-porous substrate so that the entire piece can be moved without handling the coated areas. The latex compound may be used as an adhesive by pouring a small quantity onto the support, positioning the model and allowing the assembly to dry.

Brushes used to apply moulding latex should be rinsed in a solution of soap and water both before and after use. This aids cleaning of the applicators and prolongs their use.

When applying brush latex, care must be taken to eliminate all air bubbles in the first coat. This will ensure that the detail is accurately reproduced. If a thinner viscosity is required for the first coat, the brush latex may be diluted with a small amount of distilled water. Brush from the top of the model to the bottom and continue out from the base to a distance of approximately 4 cm on the supporting substrate. Apply the overlap for every coat of latex, not just the first. When dry the excess film provides a useful handle in casting operations.

The first coat should be dried at room temperature (23 – 25 deg C) in order to minimise lifting from the master. Once the first coat is completely dry to touch subsequent coats may be applied. Drying between coats may be carried out at room temperature. To speed up the process the drying temperature can be increased up to a maximum of 50 deg C either in an oven or by fan heater. If no heat is available, directing a current of air across the surface of the model at room temperature will speed the drying.

Do not use excessive heat as this may:

- Promote shrinkage
- Cause cracking
- Trap moisture in the film
- Lead to low tensile strength
- Cause delamination between layers

For models with a relatively large surface area, the following application may be considered. Apply the first coat of latex as described. When this is dry follow with a layer in a checkerboard pattern. Once the checkerboard application dries follow with an entire coating. Continue alternating between the full coat and the checkerboard coat until desired thickness is achieved. This technique helps to reduce the tendency to shrink and keeps the dimensions of the finished mould very close to those of the original.

Reinforcement of the latex may be achieved by applying strips of cheesecloth, burlap or a similar open weave cotton fabric to the mould after four applications have been made. The fabric should be cut into narrow strips and applied to a fresh coat of latex. After this has dried a further two or three coats of latex should be applied over the fabric. Do not apply reinforcement to areas which will need to stretch to facilitate the item's release from the mold.

The recommended number of latex coats for a model approximately 15 cm high is five to six. For models 30 cm high or larger, ten to twelve coats may be required.

Once the final coat of latex is applied the mould should dry for 24 – 72 hours at room temperature to cure. To improve the tensile strength dry for 13 hrs at 50 – 60 deg C.

Peel off the mold. The latex should be very durable and can be peeled right back inside-out. Then just pop it back to it's original shape.

Build a support stand for the mold. For most items it is best to support the mold just under the flange so that it is suspended. Larger items may require extra enforcement such as a wooden box to keep it in the proper shape when filled.

Cast your item using any casting medium. Plaster of Paris is probably the easiest and can be painted later. Polyester resin or similar polymers will reproduce very fine details in your item.

Making a Mould Using Dipping Method.

This needs to be done with a porous master which is simply dipped into the liquid latex. The porosity draws moisture from the latex causing it to thicken on the surface. Unfortunately, as this happens, air bubbles are formed in the latex. To overcome this, remove the master from the latex after a few seconds and use an old brush to stipple the surface and thus burst the bubbles. If you have had to burst some air bubbles you must re-dip immediately. Let the master dry for approx 15 minutes before re-dipping and allow to touch dry before each re-dip. The number of dips required will depend on the size of master and master complexity.

Remove the master from the liquid latex and leave it to dry for at least 3 hours before removing the mould as described later.

Making a Mould Using Buttered Latex Method.

A thickening agent can be mixed into the latex. This converts the latex into a paste of about the same consistency as whipped cream; this paste can be buttered directly on to the original using the back of a table knife, etc. The original should be firmly positioned on a base-board and the latex pasted on, starting at the bottom and working up - with upward strokes of the knife, etc. - preferably applying a thin film all over first, so that visible bubbles can be eliminated - although this problem can largely be eliminated if an initial coat can be applied using un-thickened latex (either by dipping or painting). Because of the risk of inadvertently bridging over undercuts and fine detail, the butter-on method is best-suited for straightforward originals, but is ideal for most large projects. Inevitably, the outer surface of the newly-created mould will only be as good as the finish that can be given to it with the knife or trowel, etc., although this does not usually matter. Although thickener stiffens the latex, it does not significantly affect the overall drying time.

Thickener is normally added in the ratio of between 1 and 5%, very gently mixing in a small amount at a time until the desired consistency is reached.

Making an external support case

If the mould is small it will be possible to use it for casting without any external support. Large moulds however will tend to be distorted by the weight of the casting material and an external support should be made.

The case may be made before the removal of the master from the mould however if possible it is better to remove and check the quality of the mould before proceeding. The master must of course be reinserted into the mould around which the support is to be made.

Two popular options for creating a case is to use plaster reinforced with jute scrim or make one with glassfibre. There is no need to use a release agent with these materials and the latex. However, an obvious requirement of this support is that it should be possible to remove it and it will therefore need to be made in two or more pieces.

Begin by deciding how many pieces the support should split into and where it is appropriate for the splits to occur. For simplicity, we will assume that a 2 piece support case is appropriate. Modelling clay or plasticine can now be rolled out and cut into strips before being applied as shuttering along the line where the support case is to split. Plaster and scrim is now applied to one half of the mould up to the clay wall and left to dry.

When dry, the clay wall is removed. Several indentations should be made in the newly exposed edge to enable the pieces of the finished support case to be matched up easily. Obviously these indentations should not be so deep or so angular that they will cause problems in separating the pieces and the edge of a small coin can be usefully employed to make appropriate dome shaped indentations.

Although it was not necessary to use a release agent between the latex and the plaster it is essential that it be used between the two halves of plaster. For this purpose the edge of casing can be painted with varnish or shellac to make it non-porous. Alternatively a coating of vaseline or washing up liquid can be applied.

The second half of the casing can now be created with more plaster and scrim.

When the whole of the casing is dry it can be carefully removed and the master removed from the inner latex mould.

Note that when casting, it is usually appropriate to put some of the casting material into the latex mould and tease it in the usual way (to release bubbles from the casting material), BEFORE it is encased in the support structure. The latex mould is then encased in the support casting with string or sticky tape bound around the outside to hold the casing together while the casting process is completed

Removing the master from the mould

Before removing the mould you should apply talcum powder or washing up liquid to the outside of the mould to prevent the latex from sticking to itself. The mould can then be washed, dried and again dusted with talcum powder

Use and Care of Moulds

We would always recommend to let the latex to cure properly for a day before using the mould for the first time, then wash it thoroughly in warm water with a mild detergent using a soft sponge or cloth and allow it to drain and dry thoroughly.

If feasible, to reduce the weight and amount of casting plaster needed, a shaped piece of polystyrene or a plastic bag of sand, etc. can be positioned or suspended within the mould (as the plaster is poured if necessary) to form a temporary core - so that the end result is a partially hollow casting.

When in use, depending on the material of the castings, the mould will need regular inspection and cleaning as above. When not in use, make sure the mould is completely clean and dry and is stored in a cool, dry situation, out of direct sunlight - and not positioned or poised at any angle that might cause distortion. Give the mould a light dusting of talc inside and out if you are unlikely to use it again for a while.

Tips

- Try filling the mold with water to see how it will hold the casting medium. If it bulges out, you may want to add extra enforcement or a firm surface pressing against the bulging areas.
- Try casting with cement to make long lasting garden ornaments. Try using water and freezing the mold to make ice sculptures.
- Try suspending the mold in a bucket of water to equalize the pressures and prevent bulging

All of the information given in this leaflet is to be used as a guide only. Your specific requirements will often require some testing of different procedures , you may find combining certain elements of the methods listed above suits your moulding needs best.

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