

# FIBREGLASS & RESIN SALES PTY LTD

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## Latex Rubber

Latex is a pre-vulcanised, low ammonia natural rubber.

Specially formulated latex rubber compounds are suitable for the manufacture of flexible rubber moulds. It is recommended for mould production, as it only requires drying to give it a strong elastic film. Latex is suitable for dipping, spraying and brushing, without the occurrence of runs or sags. However the brushing method is more commonly used.

Latex shows several advantages compared with other types of materials, such as low shrinkage rates and fast drying times. Intricate models can be reproduced with exact detail and made by a relatively simple process.

When making a mould with latex make sure that the master you are using is clean, dry and free of any grease or oil. Any models that are porous should be sealed with shellac or lacquer. Masters can be washed in a solution of dishwashing liquid and water then dried before the latex application, except for plaster models!

The masters should be fixed to a firm non-porous substrate so that the entire piece can be moved without handling the coated areas. When brushing on rubber latex, brushes used 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.

To accurately reproduce intricate models, care must be taken to eliminate all air bubbles in the first coat of latex. This applies for both brushed and dipped applications.

### Process

**Method 1)** when brushing you should start at the top of the model and go to the bottom, then continue out from the base to a distance of approximately 4cm 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 left to dry at room temperature (23-25°C) for about 15 minutes or until touch dry, to minimise lifting of the latex from the master. You can also see a change in the colour of the latex when drying. It starts as white in colour then goes to a slight pinkie colour then a brown when dry. Once the first coat is dry, subsequent coats may be applied. Before applying every other coat, the previous layer needs to be dry. Drying can be carried out at room temperature or to speed up the process you can increase the temperature to a maximum of 50° either in an oven or by fan heater.

Do not use excessive heat as this may:

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

It may be necessary to increase the wall thickness of the mould beyond that normally obtained in **Method 1**).

**Method 2)** Alternatively the latex can be thickened to the right consistency, with a 'Latex Thickener' at 3 to 4% to give the mould more support and reduce the number of coats required to build up the desired wall thickness. You should always apply two or more coats of the plain latex, before adding the thickener. This will allow the latex to give a more detailed finish to the mould by flowing into any intricate spaces.

For any models with a larger surface area, the next application should be considered.

**Method 3)** Apply the first coat of latex as described in **Method 1**), then allow it to dry. Follow with a layer in a checkerboard pattern. Once this coating has dried, fill in the spaces let dry then go over the model with an entire coating. Continue alternating between the entire first coat and the checkerboard second coat until you reach the desired thickness. This method helps to reduce any shrinking and keeps the dimensions of the finished mould very close to that of the original.

You can avoid distortion in larger moulds by making a multi part fibreglass or plaster shell to support the outside of the latex mould. Sometimes cheesecloth or any open weave material is applied to the wet latex coating on the model and more latex applied on top. This is used to reinforce certain areas on the mould where distortion must be prevented.

When casting into your latex mould, you should apply a thin coat of release agent to the mould, this helps when it is time to release the unit from the mould. A lubricant such as French chalk in water or a mixture of water and glycerine may be used.

***Oil should not be used as it has an injurious effect on the rubber and could contaminate your casting materials.***

Prepare casting materials as per the supplier instructions and pour into the latex mould ensuring no air bubbles are trapped in any undercuts or ridges. When the casting material has set, carefully remove the outer reinforcements (If used) and the latex mould. Then the mould should be cleaned and release agent reapplied before the next casting.

**Note:** You should never try to apply thicker layers of latex, without a thickener additive. It is better to apply thin coats, which dry faster allowing more coats to be applied. A thicker coating can trap moisture underneath and result in poor drying through the film. This can cause cracking and poor tensile strength.

Avoid all contact with copper, or copper-containing metals, including so called gold paint, as they will cause rapid aging of the latex.

## PHSICAL DATA

Boiling Point:	100°C
Solubility in water:	Emulsion
Appearance/Odour:	Milky white liquid emulsion, ammonia smell.

Total Solids Content:	60-61%
Ammonia Content:	0.6%
pH:	10.5

Modulus 700% extension:	120kg/cm <sup>2</sup>
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Tensile Strength:	300kg/cm <sup>2</sup>
Elongation at Break:	900%

## RESISTANCE TO HEAT AGING (14 Days @70°C)

Retention of Modulus:	75%
Retention of Tensile Strength:	75%

This information is given in good faith, but no warranty expressed or implied is made.

Neither, Latex or the Latex Thickener is **Dangerous Goods.**