

## **POLYESTER, EPOXY AND POLYURETHANE RESINS AND SILICONE MOULDS**

Resin jewellery is very much the current item of interest in the jewellery marketplace. This interest has been sparked by the discovery that the new resins are safe and easy to handle and enable widely different forms of jewellery to be made by the entrepreneur without the outlay of considerable capital.

With resins you can express your design ideas in many different ways. Once you have mastered the very simple concepts in handling resins the creative juices begin to flow. No longer is the large manufacturer the arbiter of public taste. Small one person ranges of jewellery are beginning to appear on the web. In fact the web and resin jewellery appear to be made for each other.

A simple web site provides the entrepreneur with a low cost shop front to the world. This has never previously been possible in marketing, that a person can create a range of designs, photograph them with a digital camera, price them and put the illustrations on your web site for sale for a very low cost and what is more important, be very successful. No more finding a shop, renting it, employing staff and then buying opening stock or making your designs in depth for display purposes.

It used to run into the tens of thousands of dollars to be raised and a lot of heartbreak if your venture did not succeed at the first attempt. There is no excuse for not trying out your ideas these days. Business failure can be a learning experience and as I have already said, these days it does not involve the trauma that used to prevent people from "giving it a go."

Apart from the marketing aspects, the new resin jewellery is succeeding because of advances in resins. There are three main types of resins used in simple jewellery manufacture. Epoxy resins, polyurethane resins and polyester resins.

Polyester resins have been used for many years and give a clear glass like appearance when cast. For certain large size castings it still may be necessary. However it is no longer the resin of choice because of its highly unpleasant odour and the MEKP hardener used. MEKP is considered a dangerous chemical by Australian Post and cannot be sent through the mail. We still use it in our factory for certain jobs but prefer to use epoxy or polyurethane wherever possible.

### **EPOXY RESIN.**

A lot of work has been put into developing this chemical by research laboratories around the world. For everyday use it is safe and has no unpleasant odour. It comes in four basic forms.

**Epoxy Laminating Resin:** This is used to make laminations with reinforcements such as fibreglass. Polyester is still the preferred laminating resin

**Epoxy Resin Adhesive:** A good example of this resin is Araldite which can be found in most hardware stores in a 2 plastic cylinder pack for dispensing equal quantities of resin and hardener. It is used in jewellery for gluing on pin backs and small repairs

**Epoxy Surface Coat:** This works in much the same way as polyester gel coat. It comes in a two pack of resin and hardener and used on wood and other surfaces to give a deep, lustrous clear glass like finish. The first time I saw it was in Florida over 20 years ago. This entrepreneur was harvesting old Florida swamp cypress, cutting into 5cm thick segments to fit a clock movement and numbers and finally coat with resin. The clocks looked terrific and sold well for years.

For jewellery this resin can be used in many ways. It looks like glass and can be built up in layers. Say you start with a picture or dried flower on one layer then a colour layer, then fillers. The possibilities are only limited by your imagination.

**Epoxy Casting Resin:** Unlike polyester resin this resin is limited to small size castings. However this is not a problem in jewellery manufacture as most jobs do not entail large size projects.

It casts water white and cures or hardens in times that allow you to complete a project without having to rush. Another good thing about it is that if there are surface bubbles or other defects in your finished

project you can eliminate them by passing the heat from a propane torch over the surface. This method of surface treatment applies also to the coating form of this resin.

### **POLYURETHANE CASTING RESIN**

We use a lot of this resin for castings of figurines. CraftCast the form we use sets up in an amazing 3 minutes. We can remove it from the silicone mould in 15 minutes or so. It is white in colour and can be filled to reduce cost and to give differing effects such as a porcelain like look, using calcium carbonate.

This hard surfaced resin would have many uses in jewellery and can be coloured any opaque shade of the rainbow. It starts off as a two part product both of which have the viscosity of water. The great advantage of this is that it penetrates every section of a mould easily and rapidly reproducing the finest detail and having no trouble with undercuts. A good resin to use.

\ For clear castings and for transparent dye effects, we use Polyurethane WC782. This resin cures in 15 minutes and may be removed from the mould in 6 to 8 hours.

The only problem with polyurethane is its sensitivity to moisture, so you must be sure that anything you add to the casting mixture is dry, otherwise the casting will not cure or will foam. No trouble once you get used to it.

### **POLYESTER CASTING RESIN**

This has been the basic resin used for over 20 years. You can make large clear water white castings that are strong and resemble glass. Wherever possible we avoid using polyester resin, instead preferring to use epoxy or polyurethane resins which are less toxic.

Instead of using equal or large quantities of hardener as you do for the other resins you need a few drops to start the cure process of polyester. A good starting point is to use 10 drops of MEKP hardener to 30ml of polyester resin. As such a small quantity of hardener is used you must be accurate in your measuring. Extra care must be taken when handling polyester resins. They have a nasty smell and can cause skin problems to sensitive skins. Use only in well ventilated areas.

**Safety Note:** Before starting any project with polyester or any of the resins listed here you should ensure that you read the manufacturers instructions carefully. **Keep away from children these are industrial products and require care in handling.**

### **WHICH RESIN SHOULD YOU USE?**

As you can see there is no one answer. Different projects require different resins. To help your decision making we have decided to do a few different jewellery projects and explain our reasoning for using this or that resin. You can agree or disagree but at least you can do so from a better informed opinion.. All manufacturers publish detailed instructions for their particular version of epoxy, polyurethane or polyester resin, so be sure you follow the specific directions for the product you choose.

*By Stan Alderson*