Subject: Molding and Casting
Posted by HMPoweredMan on Tue, 02 Apr 2013 17:06:48 GMT
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I plan on making molds of my 3d models and casting them with resin.
Does anyone have any suggestions or tips for a first time mold maker?

My main concern is air bubbles trapped in my molds. Specifically on my companion cube model.
Also what paints would be best for a plastic model?

Subject: Re: Molding and Casting
Posted by Innovo on Thu, 04 Apr 2013 11:41:44 GMT
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HMPoweredMan wrote on Tue, 02 April 2013 17:06
My main concern is air bubbles trapped in my molds.

I am not an expert but you can never be certain of the outcome unless you have a vacuum chamber to remove the bubbles.

Subject: Re: Molding and Casting
Posted by GregP on Fri, 05 Apr 2013 02:40:58 GMT
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Hi, two main ways to avoid bubbles other than picking them out of your resin with a needle: (been there, bought the tee-shirt
- mount your resin mold on a rigid board on foam rubber. Screw down a small 12 volt electric motor with an excentric weight on the shaft and power it up immediately after pouring. (small 1/4" or 6mm bolt with a cross hole drilled through it to fit the motor shaft. Tighten nut onto bolt/shart and superglue)
- As Innovo suggests, vacuum your mold etc in a wooden box using a cheap 12v tyre pump inside the box with the hose comming out through a tight hole.
- both the above.
The wooden box will need sealing with varnish etc.
Greg,P.

Subject: Re: Molding and Casting
Posted by BillBedford on Fri, 05 Apr 2013 12:29:51 GMT
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Just use low viscosity resins.

Subject: Re: Molding and Casting
Posted by HMPoweredMan on Fri, 05 Apr 2013 14:11:21 GMT
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Thanks food the responses. I don't mean bubbles in the resin. I am talking about bubbles trapped in the mold that might not escape from air vents.

Subject: Re: Molding and Casting
Posted by GregP on Fri, 05 Apr 2013 21:24:30 GMT
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Hi, I assume your problem is that you can't see the bubbles until after the 'rubber' is set. In that case you need to be careful in mixing and pouring it so as to avoid creating bubbles, experiment with pouring at different air temperatures and also vibrate/vacuum to draw any bubbles out. Air temperature might well be your problem - I haven't had that problem to any great extent but then I only work in warm surroundings.
Greg.P.

Subject: Re: Molding and Casting
Posted by BillBedford on Sat, 06 Apr 2013 00:18:06 GMT
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HMPoweredMan wrote on Fri, 05 April 2013 14:11Thanks food the responses. I don't mean bubbles in the resin. I am talking about bubbles trapped in the mold that might not escape from air vents.

You can paint a thin layer of mould material over your pattern to ensure that all the nooks and crannies are filled before you pour the main body of the mould.

Subject: Re: Molding and Casting

Posted by GregP on Sat, 06 Apr 2013 02:42:46 GMT
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Hi Bill, 35+ years of casting and I never thought of that - Duhh!
Greg.P.

Subject: Re: Molding and Casting
Posted by UniverseBecoming on Sat, 06 Apr 2013 04:53:26 GMT
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All of the above, and one method not mentioned yet is to use air pressure. This is where you put the entire mold in a pressure chamber after it has been filled with resin. This then causes the entrapped air at atmospheric pressure to become highly compressed to the point of not being visible to the unaided eye.

Smooth-On is a good place to go to learn all about materials and methods.

Subject: Re: Molding and Casting
Posted by HMPoweredMan on Mon, 08 Apr 2013 15:53:34 GMT
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Awesome advice. Thanks again. Smooth-On is where I got my mold materials. Can't wait for my print to arrive to try this out!

Subject: Re: Molding and Casting
Posted by SophieKahn on Mon, 22 Apr 2013 20:04:39 GMT
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If you are using silicone mold materials (like Mold Max 30, 40 etc from Reynolds) a technique that has always worked for me is to mix up a small amount of your moldmaking material, and 'stipple' on a very thin coat , all over the model. You can use a chip brush that has been cut off about half way. If you apply the stuff thinly enough you will actually see any bubbles that form, and pop them with a fine tool or a skewer. Let that coating set up for a while before mixing and applying the rest of the material.

This should work for both brushed-on glove molds, or poured molds. Hope this helps! I make glove molds from 3d printed parts and have never had a bubble with this method. (I recommend the glove mold technique over poured molds if your object is complex, or has a lot of undercuts.) It

should work for urethane also.

Subject: Re: Molding and Casting
Posted by GWMT on Tue, 23 Apr 2013 23:06:40 GMT
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There's lots of good advice and help on the Casting List on YahooGroups:
http://groups.yahoo.com/group/casting/