Subject: Filling the void...
Posted by WiKKiDWidgets on Sat, 23 May 2009 15:08:50 GMT
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So we all endeavor to make our models as hollow as possible to reduce to cost of 3D printing. But when you get your model in your hand, it is usually light as a feather and has no 'substance' to it.

So I have ben pondering filling the void inside the model with something to make it a solid mass:

(Theory: Drill a little hole in an inconspicuous spot, fill, and seal.)

I'm posting this to get some ideas from the masses as I am sure I am not the first to think about this.

Some ideas I've come up with are:

Epoxy:
Mixing enough of it could be a little pricey and I am not sure if there would be a chemical reaction with the model's medium. 5 minute epoxy would add some serious strength to the model.

Sand:
Ya, regular old sand. Where I live I have access to the ocean and a seemingly inexhaustable supply of sand. I like the idea of how much weight this would add to the model, but think it might be near impossible to fill all the void inside. Big con here is that the Sand does not add any strength to the model.

Plaster of Paris:
Major concern here is that I know POP can get pretty hot when it cures, so the melting point of the model's medium wold be a concern. Otherwise, a decent choice.

Wax:
I'm sure the melting point of wax is far lower than the Model's medium, but since heat is involved here, it bears consideration.

Resin:
Dozens of choices here, but all of them extremely sticky potential mess. Curing time would also be a concern.

Glue:
Chemical reactions with the Model's medium would be a concern with many types of glues. And the curing time might make others a bad solution. But I'm sure there is a glue out there that might

fit the bill.

I'm looking for feedback, other ideas, advice, words of wisdom, experience, etc, etc.

anyone out there already done something like this?

Subject: Re: Filling the void...
Posted by daddymack on Sat, 23 May 2009 20:49:51 GMT
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Hi WiKKiDWidgets.. I use resin here, mainly because it's what I'm using for other projects at the moment. Takes about 15 mins to cure and like you mentioned, care needs to be taken with spillage. I have an array of funnels here with varying spout widths, otherwise, a firm paper funnel will do the trick.

Subject: Re: Filling the void...
Posted by WiKKiDWidgets on Sat, 23 May 2009 21:30:54 GMT
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What kind (brand) of resin are you using? I am biting my lip wanting to try some method here to fill up the inside. I was at the store earlier today looking over options and nothing jumped out at me.

Also curious about the weight of the model afterward. I know thats relative to the size of the model, but give me a general idea.

Thanks for the reply Daddymack!

Subject: Re: Filling the void...
Posted by daddymack on Sun, 24 May 2009 01:42:42 GMT
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Model feels rock solid afterwards as if it was printed solid.

I'm using polyurethane here as it's the least toxic and fairly sturdy. My supplier in Australia is here

http://www.barnesonline.com.au/productsByCategory.asp?intCatalogID=1&strCatalog_NAME=Resins+-+Polyurethane

I'm using easycast from that page. Anything of a similar spec will suit

It's the same resin I'm using in the casting process so it's sturdy enough to hold it's own... I've used it on pieces with bits as small as 2mm

Good luck;)

Subject: Re: Filling the void...
Posted by WiKKiDWidgets on Sun, 24 May 2009 05:26:26 GMT
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Casting resin eh? *hmmmm*

I am going to research that and see if I can find myself a local distributor or a similar substance. That sounds perfect!

Much obliged Daddymack!

Subject: Re: Filling the void...
Posted by Ushanka on Sun, 24 May 2009 21:27:26 GMT
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Do you fill the model all at once or do you fill it partially and let that cure before continuing?

Subject: Re: Filling the void...
Posted by daddymack on Mon, 25 May 2009 02:18:35 GMT
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I definitely just drill and fill in one go, there's no reason to really allow curing.

I fill the model with water first and measure the water to estimate how much resin to mix and pour.

Make sure the model has been allowed to dry properly before resinating it though Resin and water are not friends...

Good luck

Subject: Re: Filling the void...
Posted by Whystler on Mon, 25 May 2009 14:52:40 GMT
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On thing I would caution you against, is filling your model with something jelly like, or flexible (ie. silicon). I notice that things with a rigid exterior and a softer interior are apt to shell breakage, where they would not otherwise break when they are empty.

A long while ago, I ordered some half-fist sized models in the detail materials, whose "shells" were quite thin. Yet I purposefully left no exit hole, so it held the support material inside. The support material of the detail materials is sort of waxy and rubbery. All of the items were easy to "crack" in normal wear situations. One of them cracked during delivery.

-Whystler

Subject: Re: Filling the void...
Posted by magengar on Fri, 18 Jan 2013 13:18:19 GMT
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Resin..... I use this brand here...
http://www.alumilite.com/ProdDetail.cfm?Category=Casting%20Resins&Name=Alumilite%20White

Resin cures rock-hard so your hollow object becomes rigid.
If you wanna fill your object to make it solid, this resin
will do you justice.
A 28oz. kit lasts a long way for small objects.

You can find it at local hobby stores.
If your local hobby store doesn't carry this brand
you can find it here... www.hobbylobby.com

Here's a catalog of resin types, for those who wanna

venture into Resin Casting, for making replicas of your
Shapeways printed models...
http://www.alumilite.com/Category.cfm?Category=Casting%20Res ins

Enjoy.

Subject: Re: Filling the void...
Posted by bobquincy on Tue, 12 Feb 2013 15:33:34 GMT
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Wood's metal or Cerrolow have a melting point of about 160F. These alloys are used by model railroaders to add weight to plastic shells without melting the plastic.