Subject: Lost Wax casting for other metals
Posted by Layton on Thu, 19 Jan 2012 23:01:35 GMT
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Hi, I've been looking at the quality of the final printed models and it appears that silver glossy gives the best results.

I'm wondering if Shapeways could offer the lost wax casting method for other metals.

Wouldn't it be great to achieve the same exceptional detail and smooth, high-gloss finish that is possible with this method, but using cheaper metals like bronze or steel?

If Shapeways cannot do the casting in-house, why not allow users to print their models in wax and we can then contact a local foundry to do the casting in whatever metal we please?

Personally, I don't like the print lines that can be seen using the current method on stainless steel, but printing in silver is simply too expensive for larger sculptural models.

Subject: Re: Lost Wax casting for other metals
Posted by stonysmith on Thu, 19 Jan 2012 23:39:30 GMT
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(hint) Someone mentioned titanium on the Shapeways Live conference call today (/hint)

The problem with wax is being able to deliver it safely. Last summer in Texas, we had 90 days over 100 degrees. If a wax model had been placed on my doorstep, even in 6" of packing, it would have been nothing more than a puddle before I got home.

You also have to consider the force applied to the wax models when the friendly UPS driver tosses the box 20' into a shipping container ... and misses.

Yes, such details CAN be worked out, but they do have to be WORKed out... Give Shapeways some time.. they'll get this done.

Subject: Re: Lost Wax casting for other metals
Posted by stannum on Fri, 20 Jan 2012 00:12:36 GMT
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The smooth finish of the glossy silver is performed on the casted part and only smooths the raised

areas, leaving hard to reach zones rough. So glossy silver isn't a good hint of how the raw wax looks.

Subject: Re: Lost Wax casting for other metals
Posted by Layton on Fri, 20 Jan 2012 01:22:38 GMT
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@stonysmith

Titanium is more expensive than steel, isn't it? My desire is to print larger sculptures in metal without the high costs associated with silver yet still have a smooth finish. I concede that shipping finely-detailed wax models probably isn't such a great idea.

One of the issues I have with Shapeways is that none of the materials seem to provide the kind of surface smoothness I desire. When I look at high-resolution photos of models printed by other printing service bureaus they appear smoother and don't have that sandy texture.

@stannum

Even the non-glossy silver is much smoother than results in steel by quite a bit. I'd be happy with that surface quality in other metals.

Subject: Re: Lost Wax casting for other metals
Posted by Tamert on Fri, 20 Jan 2012 21:03:59 GMT
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Layton wrote on Fri, 20 January 2012 01:22@stonysmith

Titanium is more expensive than steel, isn't it? My desire is to print larger sculptures in metal without the high costs associated with silver yet still have a smooth finish. I concede that shipping finely-detailed wax models probably isn't such a great idea.

One of the issues I have with Shapeways is that none of the materials seem to provide the kind of surface smoothness I desire. When I look at high-resolution photos of models printed by other printing service bureaus they appear smoother and don't have that sandy texture.

@stannum

Even the non-glossy silver is much smoother than results in steel by quite a bit. I'd be happy with that surface quality in other metals.

Hello Layton,

All metal printing processes that I know of are rather grainy. However, a good high resolution process for you maybe metal plating of rapid prototypes plastics. I have used this service:

http://www.3ddc.eu/ourservices.php

It's substantially less expensive than any of the metal printing options.

Basically, you order your print from shapeways. Receive it, polish it to whatever level you desire, and then send it to 3DDC for metal plating. They offer many types of metal finishes that can be customized to suite your desire.

From a mechanical stand point the metal finishes also add substantial strength to the model.

Subject: Re: Lost Wax casting for other metals
Posted by Layton on Sun, 22 Jan 2012 20:43:29 GMT
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@Tamert

Thanks for pointing me to that, it might prove to be the solution for me. Can you share any images of the final product? There aren't too many examples on their site.

I'd still be interested in Shapeways offering a lost wax casting method for other metals, though, simply to have a 100% metallic piece.

Subject: Re: Lost Wax casting for other metals
Posted by Plasticdreaming on Sun, 22 Jan 2012 21:22:35 GMT
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Layton i share your desire to see a smooth surfaced metal offering alternative to silver as well. I really like the finish of the silver items i have seen in photos and would be ecstatic (and ordering

far more) if stainless steel or some other type of metal was offered with surface detail / finish that rivaled a non glossy silver let alone a glossy silver.

Subject: Re: Lost Wax casting for other metals
Posted by stonysmith on Mon, 23 Jan 2012 03:26:20 GMT
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Go to http://feedback.shapeways.com and create an entry for the material(s) you'd like to see. Then others can vote on various materials.

Subject: Re: Lost Wax casting for other metals
Posted by Plasticdreaming on Mon, 23 Jan 2012 03:45:06 GMT
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stonysmith wrote on Mon, 23 January 2012 03:26Go to http://feedback.shapeways.com and create an entry for the material(s) you'd like to see. Then others can vote on various materials.

Done and Done! Please vote!

http://feedback.shapeways.com/forums/111989-shapeways-feedba
ck/suggestions/2535008-metal

Thank you for the suggestion stonysmith. I hope others make their voices heard by voting. I'd love to purchase more stainless steel from Shapeways but unfortunately the finish limits my uses in many cases. If Shapeways provided a smooth surfaced / high detail metal option (i.e. with no print lines or at least on par with silvers smooth surface) i'd buy FAR FAR more.

Subject: Re: Lost Wax casting for other metals
Posted by Tamert on Mon, 23 Jan 2012 16:44:16 GMT
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Layton wrote on Sun, 22 January 2012 20:43@Tamert

Thanks for pointing me to that, it might prove to be the solution for me. Can you share any images of the final product? There aren't too many examples on their site.

I'd still be interested in Shapeways offering a lost wax casting method for other metals, though, simply to have a 100% metallic piece.

Hello Layton-

I cannot distribute any pictures of the products I have produced using this method. They are functional parts that I designed and produced under contract for a third party.

However, I can tell you about the finishes that I received real generally. After a bit of trial and error, I found that you can create everything from a matte style finish to a near polished look. The key is polishing or roughing up the surface of your model before sending it into plating. If the surface of your plastic part is rough before before plating, it will be rough after. Smooth before = smooth after.

You can choose from a wide variety of actual finishes. So far I have used their nickel/copper/nickel process and just nickel/copper process. You can choose the metal plating thickness up to 4 mils without substantial changes in pricing.

If you choose the full 4 mils (100 um) your part will be EXTREMELY durable. Brittle materials like the FUD materials offered by shapeways become substantially stronger than WSF (but not flexible).

Lastly, you can create many unique coloring effects by post processing the metal coated model once you receive it. Check out the post production techniques forum here for other ideas but with a copper finish you can create some amazing patinas.

Hope this is helpful.

Subject: Re: Lost Wax casting for other metals
Posted by abby on Mon, 23 Jan 2012 22:32:03 GMT
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There are hundreds of foundries that offer lost wax castings in all metals and at prices less than Shapeways.
I cast in bronze or brass from printed patterns , which I finish to the desired surface quality before taking a silicone mould from which the wax patterns are made.
If you wish for more information visit
http://www.unionsteammodels.co.uk

I have had wax patterns sent to me here in the UK from the USA and Australia and have never had one broken in transit , the waxes used for lost wax casting have melting points well above anything the weather would damage and are flexible enough to withstand some shock handling although very cold temperatures will make them brittle , as one would expect.

Subject: Re: Lost Wax casting for other metals
Posted by Layton on Tue, 24 Jan 2012 04:29:10 GMT
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Thanks abby

I looked into my area and unfortunately there aren't any foundries in my province (Canadian here), so I would have to ship my stuff no matter where I get it done. I may end up contacting you later this year!

Subject: Re: Lost Wax casting for other metals
Posted by Bathsheba on Fri, 27 Jan 2012 10:19:41 GMT
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The trouble with larger (>2") objects tends to be that there is no 3DP process that is
1) cheap enough to print big things
2) high-resolution enough to give a nice surface
3) castable

#3 is a surprisingly heavy constraint. Most 3DP materials other than wax aren't optimized for clean burnout, and even those intended for casting often don't work well outside specialized industrial foundries that are too expensive for art.

Of course, none of this is an issue if your designs are moldable: print them in any material else you like, make a mold, pull a wax, take it to a foundry and be happy. Better yet, pay the foundry to make the mold and be even happier.

Subject: Re: Lost Wax casting for other metals
Posted by Bathsheba on Fri, 27 Jan 2012 11:42:53 GMT
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Quote:CAD and RP have their place but it is not in art.

I want this on my tombstone.

Subject: Re: Lost Wax casting for other metals
Posted by abby on Fri, 27 Jan 2012 12:22:53 GMT
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Subject: Re: Lost Wax casting for other metals
Posted by Tamert on Fri, 27 Jan 2012 16:29:38 GMT
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abby wrote on Fri, 27 January 2012 11:32That should be counted as a plus Bathsheba , it means that artistic skill will not be lost and use of hand and eye is still far far superior to working digital. CAD and RP have their place but it is not in art.
The use of RP has perhaps made time to market quicker for many manufacturers but lets not pretend that the products can be classed as having any art value.
The plethora of junk being produced and sold as art , jewellery etc by printing amazes me.
Having worked for respected sculptors , artists and jewellers here in the UK I value the posession of skill .
Art cannot be driven by software , just my opinion of course and in our stricken society money will continue to be the driving force for most.

This is incredibly elitist and insulting.

So I take it that none of the sculptors you have worked with have ever used an air hammer to rough cut their stone sculptures? None of the artists that you have worked with have ever used a synthetic brush?

What you are describing are highly developed trade skills, not art. Modern computer technology and RP technology allows for those who perhaps don't have years to spend to develop trade skills to express what they find beautiful. The expression is art, not the mechanics of creating it. Advances in CAD and RP technology are allowing somewhat crude expressions now but as the technology progresses will allow for nearly limitless expressions.

Subject: Re: Lost Wax casting for other metals
Posted by GlenG on Fri, 27 Jan 2012 17:34:13 GMT
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Oh boy Abby,
You have just drawn the crosshairs on your own back 8o !

Subject: Re: Lost Wax casting for other metals
Posted by GlenG on Fri, 27 Jan 2012 19:23:52 GMT
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The sculptor Constantin Brancusi once commented;
"The joy that beauty gives us, the aesthetic sensation, has nothing to do with the profession of art".
For me, this statement puts to rest the debate over what art is or is not . The proof will always "in the pudding"! Or as Duke Ellington once said; "If it sounds good, it is good". So lets all stfu and get back to work, the bench or the workstation, no difference.
-Glen

Subject: Re: Lost Wax casting for other metals
Posted by stop4stuff on Fri, 27 Jan 2012 19:41:02 GMT
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Abby,

Art is art no matter the medium - some art is better than others, but that is down to opinion.

Whereas talent is talent no matter the skillset. :)

Paul

Subject: Re: Lost Wax casting for other metals
Posted by abby on Fri, 27 Jan 2012 20:13:08 GMT
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Subject: Re: Lost Wax casting for other metals
Posted by Tamert on Fri, 27 Jan 2012 21:25:50 GMT
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Hello Abby,

What I meant to get across was that I don't view the method of production as a determiner of whether or not the object is art.

For example, let's say that you're walking through an art gallery and you see a painting that strikes you as incredibly beautiful. What if it actually turns out to be a print of another painting? Does that mean that the print isn't art?

Do you believe that the method of production determines if something is art or not? Perhaps my view is wrong?

I view painting, for example, as an acquired skill that doesn't necessarily make something that a painter paints artistic. The key that differentiates art for me is that the painter has an insight that is expressed through his painting. I wouldn't look at the painting and say, look at these amazing brush strokes, this painter is amazingly technically which makes this painting amazing. I would look and say this painter is expressing something through this painting, regardless of technical ability.

Subject: Re: Lost Wax casting for other metals
Posted by Bathsheba on Fri, 27 Jan 2012 23:10:47 GMT
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@abby, this epitaph is gonna be blasted on a gigantic pristine nickel-iron meteorite by a lightning bolt flung by the selfsame hand of God.

In Papyrus font.

Subject: Re: Lost Wax casting for other metals
Posted by GlenG on Fri, 27 Jan 2012 23:59:11 GMT
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One big can o' worms when it comes to defining what Art is or is not. I don't believe there will

ever be any universal agreement on this topic, only opinions. Last word from me is another on topic aphorism from my hero Brancusi;
"Works of art are mirrors in which everyone sees his own likeness".

-G

Subject: Re: Lost Wax casting for other metals
Posted by GlenG on Sat, 28 Jan 2012 00:15:20 GMT
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Quote:@abby, this epitaph is gonna be blasted on a gigantic pristine nickel-iron meteorite by a lightning bolt flung by the selfsame hand of God.

In Papyrus font.

I love you Sheba!

-G

Subject: Re: Lost Wax casting for other metals
Posted by Roy_Stevens on Sat, 28 Jan 2012 01:00:56 GMT
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You are so right Abby! Anything not made with animal blood and fire soot, painted on cave walls with fingers and chewed reeds cannot possibly be considered art! All of us true artists must shun technology as is it corrupting artistic expression!

Subject: Re: Lost Wax casting for other metals
Posted by crsdfr on Sun, 29 Jan 2012 09:05:54 GMT
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Bathsheba wrote on Fri, 27 January 2012 10:19The trouble with larger (>2") objects tends to be that there is no 3DP process that is
1) cheap enough to print big things
2) high-resolution enough to give a nice surface
3) castable

Bathsheba, do you have any thoughts on the SLA QuickCast process? Have you had much experience with some of the newer Casting materials (Amethyst or CastPro?)

Generally QuickCast parts should be cheaper than standard SLA due to the substantially lower amount of material used. Just specify to the RP Bureau of your choice to strip and ship and do the cleanup/prep yourself. It's generally just a bit of sanding of the supports and filling the drain holes with wax.

We've had a lot of success with QuickCast - it may require a bit of trial and error with your caster of choice, but I can send you the tech docs on some of the reccomended techniques on it. The parts look far better than anything DMLS or SLM can produce, though not quite on the level of what the 3000CPX's can achieve, but getting close, and importantly significantly cheaper for the masters.

Subject: Re: Lost Wax casting for other metals
Posted by Bathsheba on Sun, 29 Jan 2012 10:34:12 GMT
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I have some Quickcast parts. I agree the surface finishes can be very nice and that they're much lighter than normal SLA parts.

I last looked into this several years ago, and at that time was advised that art foundries -- places run by guys who went to art school, that pour bronze into investment or ceramic shell molds -- aren't likely to see success with these parts. They're just not equipped to follow unusual or precise burnout protocols; and the foundries that are, I can't afford.

I don't know whether that may have changed, or maybe I just didn't meet the right guys, but for me the question was rendered moot by direct metal printing. It's well enough suited to my designs, that I'd rather deal with the limits it imposes, stringent as they are, than go back to casting. I still do cast occasionally, for larger commissions, and of course I'm interested to know anything that would help with that.

But I would have to say that casting procedure specs aren't useful to me, without a foundry contact able to execute them at a price competitive with an unspecialized midrange art house.

Subject: Re: Lost Wax casting for other metals
Posted by Layton on Tue, 31 Jan 2012 07:00:03 GMT

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I'd like to get the thread back on track by addressing something Bathsheba said.

Yes, the idea is to print a high resolution model in whatever material, have a wax cast taken, and then provide other metals. That is basically what I believe Shapeways could provide in-house. They just need to get printers that are higher resolution... I've seen other services which provide much better resolution, it's just expensive because they don't get the volume that Shapeways would.

As for what abby said, I believe he should take a look at the digital sculptures on pixologic's forums at Zbrush Central before he dismisses all digital sculpts. That is all.

Subject: Re: Lost Wax casting for other metals
Posted by abby on Tue, 31 Jan 2012 20:21:51 GMT
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Subject: Re: Lost Wax casting for other metals
Posted by Youknowwho4eva on Tue, 31 Jan 2012 20:40:23 GMT
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This discussion went way off course, got back on course, and before it goes back off course, the discussion of "What is art" in this thread stops now. If you want to start a thread in general discussion about it, your more than welcome. This thread is about Lost Wax casting for other metals than the current Shapeways Silver. On with the show!

Thanks,
Mike

Subject: Re: Lost Wax casting for other metals
Posted by cadop on Tue, 31 Jan 2012 21:34:51 GMT
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To the mention of wax burnout vs something else... you can atleast burnout ABS plastic that has been printed through FDM. That is a relatively common and known way to do burnouts of 3d printing for casting in any metal.

Subject: Re: Lost Wax casting for other metals
Posted by ana on Tue, 31 Jan 2012 22:19:47 GMT
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Thanks Mike!

And thanks everyone who's been working to contribute to the original purpose of the discussion.

@abby I understand you feel strongly about this, but please share your opinions in a way that's more respectful.

Cheers,
Ana