Subject: plain non-colour sandstone
Posted by stop4stuff on Wed, 05 Jan 2011 16:03:37 GMT
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Following the dipsapointment of having a model (Flugel Horn) rejected for 2mm parts being under the now 'staturory' 3mm wall thicknes, I have decided to try another avenue to get the horn model made in metal.

I have a quantity of a Bismuth-Tin alloy with a melting point of 138 celcius that is suitable for casting.

I checked the materials properties for Sandstone with a view to making a mould, the datasheet says 280 celcius heat deflection temperature but the materials page gives 60 celcuis as the heatproof temperature.

Am I correct in thinking that heatproof temperature is for the wax infused colour sandstone and that the plain non-colour sandstone would be good for much higher temperatures (max temperature as a mould would probaly be no more than 150 celcius)?

Subject: Re: plain non-colour sandstone
Posted by stannum on Wed, 05 Jan 2011 22:10:48 GMT
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Non colour is the same than colour, just no pigment.

Subject: Re: plain non-colour sandstone
Posted by stop4stuff on Wed, 05 Jan 2011 22:34:43 GMT
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Please clarify that we are talking about the temperature tolerance.

Cheers

Subject: Re: plain non-colour sandstone
Posted by TimberWolf on Thu, 06 Jan 2011 01:54:11 GMT

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I am not sure, but you could try this route instead:

Use Detail material, and after it comes, make sure you post-process such that the surface is shiny.

Next, use silicone casting resin to make a mould. Silicone should be heat-resistant until 250 deg Celcius (used for oven gloves and cooking implements) so it might be suitable to cast your alloy in. Not sure about what tolerances you might get though, as silicone is a rather soft material.

Finally, I am not sure if your alloy is very safe for handling due to bismuth. You might want to check with the others on that.

QX

Subject: Re: plain non-colour sandstone
Posted by stannum on Thu, 06 Jan 2011 05:01:07 GMT
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stop4stuff wrote on Wed, 05 January 2011 22:34Please clarify that we are talking about the temperature tolerance.
The print system is all the same, except the inkjet heads apply only pigmentless binder in one case. Both "sandstones" are infused, and the infusion material starts to melt at 60C or so ("my sandstone has white surface" -> "put the part in the oven at 50C"). If you want too look for info, sandstone base is Zcorp system and the infusion is Xlaform. Zcorp can be used to do molds, but normally bigger industrial parts and with a different workflow, probably destroying the mold. They have videos of what they cast that way, complex pipes or parts to be machined to the right size after casting.

As Timberwolf suggests, and if the alloys are safe for the use, you are probably better going with silicone molds of postprocessed masters (good silicone and the right casting material will replicate any texture in the surface). Make sure you get the high temperature silicone, some can only be used with plaster or resins, but others are fine and common among people doing scale miniatures (toy soldiers) with low temp alloys.

Subject: Re: plain non-colour sandstone
Posted by stop4stuff on Thu, 06 Jan 2011 10:10:56 GMT
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Thanks for the clarification stannum.

@TimberWolf... thanks for the idea.

I have successfully cast the 138 BiSn alloy with a latex mould supported in sand from a one off wax master in the past.

It really is the look and feel of the printed stainless material that makes it quite special (to me) and attractive to others.

After some reflection I am trying different avenues to try to get the horn printed in steel, but may resort to BiSn if all else fails... I checked the SDS for the alloy and is can be irritating to skin so it would need a barrier coating (resin, lacquer etc) is used. Also making a 3 part mould using a applicable RTV Silicone would be an interesting challenge.

Hey ho, more than one way to skin a cat (as they say)

Subject: Re: plain non-colour sandstone
Posted by Magic on Fri, 07 Jan 2011 18:35:10 GMT
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According to me if you heat Sandstone enough (like 100Â°C), you will get rid of the wax coating, and then the maximum temperature will become 280Â°C again. Never tried though...

Subject: Re: plain non-colour sandstone
Posted by stop4stuff on Fri, 07 Jan 2011 18:47:02 GMT
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Magic wrote on Fri, 07 January 2011 18:35According to me if you heat Sandstone enough (like 100Â°C), you will get rid of the wax coating, and then the maximum temperature will become 280Â°C again. Never tried though...

That's what I was thinking... heat deflect temperature means the temperature at which the material deforms under a certain load (I looked it up)... I'll get round to trying it sometime, but not this time around... the horn is a no go now

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