Subject: Drainage Holes: Are they Necessary?
Posted by PeregrineStudios on Sun, 20 Jan 2013 18:18:48 GMT
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Hey folks,

I've been bouncing an idea around in my head for a little while, ever since I received a pair of earrings I ordered in plastic. They were hollow, with draining holes for the support material. But when I received them, I noticed there was still a huge amount of support material left inside.

Now, I'm not complaining in the slightest. It's an unsightly hole either way, whether there's support material left over or not. But now I'm wondering: is it even necessary to HAVE a drain hole? If support material gets left behind anyway, what's the point of having one? I always assumed it was required to have one, but thinking about the 3D process, plastic models are built up layer by layer, with support material used where necessary. Wouldn't it be possible to have a 100% enclosed inner mesh filled only with support material?

I'm either an idiot for asking, or an idiot for not having known all along that that could be done. Either way, I want to find out exactly why I'm an idiot, so could somebody enlighten me?

Thanks!

Subject: Re: Drainage Holes: Are they Necessary?
Posted by stonysmith on Sun, 20 Jan 2013 19:06:30 GMT
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You can't have 100% enclosed. For SOME materials, you can achieve 99.9% enclosed. That is, you can make a VERY TINY hole between the inner and outer shells, so that the various software packages will recognize it as "open", but it's not practical to get the material out.

The trouble is.. how much trapped support material are you going to have? If it's a relatively small amount, the production team may let it slide, but if it's a large amount, they will fail the model for not having drain holes.

There is a known exception for tiny drain holes in certain cases on certain materials, but the rules for it are not very clear.

Subject: Re: Drainage Holes: Are they Necessary?
Posted by PeregrineStudios on Mon, 21 Jan 2013 00:33:33 GMT

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Hmm, ambiguity is fun. Alright, nothing for other than trial-and-error, I suppose. It's an interesting topic to be sure. Thanks for your reply! :)

Out of curiousity, why do they care if the model is drained? Are they able to recover some of the support material to reuse? If that were the case I can see them wanting to keep them open. But if not, what's the purpose?

Subject: Re: Drainage Holes: Are they Necessary?
Posted by stop4stuff on Mon, 21 Jan 2013 13:32:24 GMT
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Two things going on here;
1 - the support material for strong & flexible plastic is the same nylon powder as the finished model, it gets re-used.
2 - when you upload a model with a watertight outer shell, any inner shells are deleted as the outershell is watertight.

For detail plastic, the support material is the uncured resin and, afaik, it is not recovered.
For Frosted and Ultra Frosted Detail the support material is wax and, afaik, it is reused.

Paul,
stop4stuff Modeller for hireShapeways Shop - Controller PendantTwitterYouTube

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Subject: Re: Drainage Holes: Are they Necessary?
Posted by matt_atknsn on Tue, 22 Jan 2013 04:46:24 GMT
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FWIW, it may be intended (by the designer) to have trapped support materials, perhaps the drain hole is big relative to the model and the designer just has a very tiny hole for the volume check; or maybe some post-processing by the buyer that such trapped material is of no consequence... eitherway the tech/checker has no way of knowing it and the model would have a chance of getting rejected...

(the above is my experience with Frosted Detail/Frosted Ultra Detail material BTW)

Cheers!

Subject: Re: Drainage Holes: Are they Necessary?
Posted by stop4stuff on Tue, 22 Jan 2013 08:38:52 GMT
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Same as with the trapped wax in FUD, though I'm starting to think that when one of my models with a trapped wax feature is ordered, the good peoples at Shapeways are getting the idea that the wax is a feature and they'll let the model through - As it happens, I'm awaiting a delivery today of this one which went through without any issues.

Paul
stop4stuff Modeller for hireShapeways Shop - Controller PendantTwitterYouTube

Subject: Re: Drainage Holes: Are they Necessary?
Posted by Fredd on Tue, 22 Jan 2013 21:40:18 GMT
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Tattletale!.:) now someone is going to get yelled at from management about wasting resources.

Keith.
Of course every little bit adds up with money saved.