
Subject: Materials Improvement: Tell us about FD/FUD
Posted by [natalia](#) on Wed, 07 Nov 2012 21:31:34 GMT
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Hi Guys,

We're looking at our materials, and how our community uses them. We are always looking to improve the choices and make quality better so we want to get some feedback about your preferences.

The current materials we're examining are FUD and FD.

I know I see a lot of FUD in the It Arrived, but not as much FD.

If you use FD or FUD, what do you use it for?

What qualities of each do you prefer?

If you use FD do you use it for final product, or as a less expensive prototype material for future FUD use?

Are they interchangeable in your eyes? Would they be more interchangeable if price was not a factor?

Let us know!

Natalia and Michael

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Youknowwho4eva](#) on Thu, 08 Nov 2012 13:50:22 GMT
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To get everybody started, I'll add that personally I have used FD once. I have not used FUD. I used FD because I wanted thin walls, but I didn't need super detail. I also was going off the material sample page, where FUD looks less transparent. And most importantly of all, it was less expensive!

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [stonysmith](#) on Thu, 08 Nov 2012 14:55:25 GMT
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Because of the scale I work in and that I'm trying to do high-detail models, FUD is the way to go

for me. Some 75% of my shop is FUD-only. The thicker wall requirement of FD means that I can NOT interchange designs. Yes, FD is attractive for the lower cost, but to use it I would have to re-design every model for the thicker wall requirement, and that defeats the purpose of using FD as a 'draft' print.

The distinction is very clear: which of these would YOU buy?

File Attachments

1) [FDFUD.jpg](#), downloaded 601 times

Subject: Re: Materials Improvement: Tell us about FD/FUD

Posted by [Jettuh](#) on Thu, 08 Nov 2012 16:29:29 GMT

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Only reason I ever bought FD is cause it the bounding box was bigger.

Rest of my Shop is FUD + WSF (for chassis)

Please note that FD is also less strong

Subject: Re: Materials Improvement: Tell us about FD/FUD

Posted by [denali3ddesign](#) on Fri, 09 Nov 2012 17:21:35 GMT

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I bought FUD once, FD not at all.

I prefer the FUD for the higher resolution, which is the reason I purchased it. It worked great for my purposes, which was a prototype of a threaded fastener. The model interfaced perfectly with a 1/4" bolt from the hardware store.

Subject: Re: Materials Improvement: Tell us about FD/FUD

Posted by [GWMT](#) on Fri, 09 Nov 2012 19:44:22 GMT

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I've experimented with both; I prefer FUD for its finer detail and smoother flat surfaces.

FD has a much larger build volume and is quite flexible when printed in thin sheets - it feels and

acts kinda like Tupperware does. Details are very sharp and precise (I've successfully printed slot and tab parts with 0.06mm clearance around the tab) but there's much more 'fuzz' (maybe 0.3mm worth) left on the piece after the print nozzle shuts off; you have to scrape this away (it easily comes off), especially if you're joining parts together.

File Attachments

1) [THB 2600 gon underframe FD stringers_0023.jpg](#), downloaded 550 times

Subject: Re: Materials Improvement: Tell us about FD/FUD

Posted by [GWMT](#) on Fri, 09 Nov 2012 20:09:58 GMT

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Another problem/feature of FD is that there's a visible grain structure on flat faces. This could be a feature if you want to simulate wood grain and you can control the print orientation so the grain runs in the direction you want it to, but it's not so great if you're simulating a smooth surface like steel in 1:87 scale

The texture is not deep - it's only about 0.1mm - but it cannot be filled in with paint unless you want to lose a lot of fine detail on the model. I found the best solution is to paint the part then sand it EVERYWHERE you want to be smooth with a medium grade sanding stick. It doesn't take much sanding to smooth things out - the paint acts like a filler in the lowest spots. The hard part is working around surface details (like a 100s of rivets) without knocking them off; take your time and you'll succeed.

You'll need to paint the part again when you're finished sanding.

My wish would be to have the same size bounding box for FUD as FD; the largest piece you can print in FUD is 50 feet long at 1:87 scale which is too small for a lot of the stuff I'd like to do.

File Attachments

1) [THB 2600 gon side partly sanded_0061.jpg](#), downloaded 538 times

Subject: Re: Materials Improvement: Tell us about FD/FUD

Posted by [Bathsheba](#) on Fri, 09 Nov 2012 20:48:52 GMT

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Question for the mavens in this thread: is there a strength difference between these two materials?

I have a fish looking for an extremely detailed model that's also not very structural, and I'm wondering whether we take more risk by using FUD.

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [stonysmith](#) on Sat, 10 Nov 2012 04:10:25 GMT
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Even at 0.6mm, FUD, is rather brittle. Believe me.. at 0.3mm, if you BREATHE on FUD it'll break.

But.. at 1.5 to 2mm thick, FUD is solid as a rock. I have this model: <http://shpws.me/IDev> and I'd dare say that it'd support 5 pounds of weight without breaking.

That's the tradeoff for FUD.. it is quite strong and therefore allows you to design much thinner walls, but as you make them thinner, it weakens the material.

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Dragoman](#) on Sun, 11 Nov 2012 18:25:31 GMT
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I make fairly small models, and offer various materials. WSF, "Detail" and FUD sell well. FD hardly sells. It seems that customers that can afford FD are willing to pay the difference for FUD.

Greetings
Dragoman

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Bunrattypark](#) on Mon, 12 Nov 2012 14:28:26 GMT
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I used FUD once, in it's early days. The result was so full of nasty yellow gunk, that it put me right off FUD. I believe, reading here, that it has improved, but my confidence was shaken a bit. However, the real reason I don't use FUD is because it is too expensive. I may consider it for a few personal modelling projects in the future, but as a medium for public sales, it is a way beyond

the price range of other resin-based materials and resin casting that are in common use in my hobby, and so, is entirely uncompetitive. It would need to be absolutely perfect to justify the cost, and it isn't. My customers wouldn't consider it.

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Youknowwho4eva](#) on Mon, 12 Nov 2012 15:22:15 GMT
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Bunrattypark wrote on Mon, 12 November 2012 14:28I used FUD once, in it's early days. The result was so full of nasty yellow gunk, that it put me right off FUD. I believe, reading here, that it has improved, but my confidence was shaken a bit. However, the real reason I don't use FUD is because it is too expensive. I may consider it for a few personal modelling projects in the future, but as a medium for public sales, it is a way beyond the price range of other resin-based materials and resin casting that are in common use in my hobby, and so, is entirely uncompetitive. It would need to be absolutely perfect to justify the cost, and it isn't. My customers wouldn't consider it.

What about FD's price? Hypothetically if FUD were the same price as FD, would you and your customers be more likely to us it?

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [BillBedford](#) on Thu, 15 Nov 2012 16:55:54 GMT
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I've used the frosted details for some time now, choosing the ultra and plain detail depending on the resolution, size or price of the finished models. While it is a good all round material for many of the items I make, there are two problem areas. The first is that it is brittle in small sections, and also it can have a surface texture that is dependent on the build orientation. This means that they is not a consistent look to models from different builds. For these reasons I have decided that it is problematic selling this material direct to the general public. However it is a very good material for pattern making for various downstream processes.

Recently I have bought some models made in the same material from a different supplier. This company finishes the pieces by bead blasting rather than using ultrasonic baths. I have been impressed with surface finish on these pieces to the extent of acquiring my own small bead blaster.

If Shapeways were to offer bead blasting as either an alternative to ultrasonic cleaning, or as an add-on service, I feel that both FUD and FD would become more popular, especially among those of us who would like to be confident that we could sell it direct to the public.

File Attachments

1) [BWK1680 fret.jpg](#), downloaded 401 times

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Phxman](#) on Fri, 16 Nov 2012 03:35:20 GMT
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With model railroad items, FUD is the way to go. However the fine detail does present problems because the material is so brittle. Often this can be cured by alterations to the drawing. I have had just one failure where handling at Shapeways caused a broken detail, and it was replaced.

For quality control I agree, selling via a Shapeways Shop is out of the question, as each print needs to be inspected. It would be nice if Shapeways kept notes on drawings for best orientation in the build, especially for repeat prints. So far Shapeways have been pretty good at it.

To date, I have not had any customer complaints, and any cleaning has been readily accepted.

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Jettuh](#) on Fri, 16 Nov 2012 21:57:17 GMT
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Hey Bill,

Attached is a picture of one of my trains that did go through the normal process like always, but after that i used the glass fiber stuff which we use to clean WSF on the FUD model, this is the result:

normally it would look like this:

<http://www.flickr.com/photos/57124849@N07/6702808571/in/photostream>

please do note, this will be really hard to achieve with all those tiny little parts people order, that

will either blow them away or break them

File Attachments

1) [IMG_20121116_223333.jpg](#), downloaded 326 times

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [GWMT](#) on Fri, 16 Nov 2012 22:11:36 GMT
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Wow! What a difference.

Have you got a video or step-by-step photos showing how you cleaned it?

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Jettuh](#) on Fri, 16 Nov 2012 22:33:30 GMT
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can you ask me on Monday?

Maybe I can try another train when I'm in the office.

Of course I have to carefully schedule it as the production team really needs that machine to clean all WSF models

ps. i did sand the model a bit, but the glass fiber stuff did really help clean the model and make it smooth, the sanding was just a finishing touch

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [Bunrattypark](#) on Sun, 18 Nov 2012 20:49:08 GMT
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Youknowwho4eva wrote on Mon, 12 November 2012 15:22 What about FD's price? Hypothetically if FUD were the same price as FD, would you and your customers be more likely to use it?

I'll take one model from my Shapeways shop, the smallest one.

Shapeways:

Cost in WSF - \$, - 31.16

Cost in FD - â,¬ 61.76
Cost in FUD - â,¬ 88.05

I-materialise:

Polyamide - â,¬ 24.56
Prime Gray - â,¬ 44.59

My shop is suspended at the moment. I decided to give it a year to see what developments might transpire. Besides which, I am busy on other things. I'd like to get my shop back into operation shortly, but I-materialise are trumping Shapeways on those prices. Both FD and FUD are out of consideration for me at those prices. I am sure there are other considerations too, but my next prototype, which is very near completion, will be sent to I-materialise. I'd like to see Shapeways offer a similar material to Prime Gray, but you would have to match the price above, for a 63x103x35mm model.

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [GWMT](#) on Sun, 18 Nov 2012 21:29:59 GMT
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There are no problems with 'nasty yellow gunk' anymore on FD and FUD prints; the new support material cleans up easy and doesn't leach out of the part later on.

The photo shows parts printed with the new support material on the left and the original 'yellow gunk' support material on the right. The part on the left was printed about eight months ago and was immediately immersed in acetone for cleaning. It hasn't changed since it was cleaned; the bumps on the left side of the parts are dribbles of material deposited after the print nozzle shut off

The part on the right is about 12 months old and was also immersed in acetone when it arrived and at first was very close in appearance to the part on the left, just a bit yellow. Over time it really yellowed and white salt crystals appeared on the surface. Other parts from this 'yellow' batch which were assembled and painted also have white salt crystals on top of the paint at this time.

File Attachments

1) [CN switchstand HO old-new FUD.jpg](#), downloaded 262 times

Subject: Re: Materials Improvement: Tell us about FD/FUD
Posted by [onosendai](#) on Mon, 19 Nov 2012 21:35:58 GMT
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Using FUD only for the highest level of detail but are not satisfied with the quality of the surfaces, as others have said, every time I have to work hard on surfaces with a lot of primer, sanding, primer.....very annoying
