Subject: FUD wax removal.
Posted by stop4stuff on Fri, 03 Jun 2011 07:34:07 GMT
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With the arrival of FUD and the ability to have very small clearances between moving parts in one print, to me one obvious application was an attempt at creating the worlds smallest working rubiks cube - the current record stands at 10mm, my cube is 6.2mm and printed in one hit

3x3x3 Twisty Puzzle (aka Rubiks Cube)

Large image here

The spacing (as printed) between the parts is 0.1mm - the spaces are filled with the wax support material. Here's a few of the methods/products I have tried in an attempt to disolve out the wax and free up the parts.

Hot water - the wax melted out, but some of the parts were fused and one part broke - I tried two cubes out using this method, the second broke too.

Alcohol hand sanitiser - this product contains 62% ethanol and seemed to affect both the wax and plastic resulting in some parts stuck together, the central spindles gone soft and broken.

Penetrating oil (WD40 etc) - partial success, but still one of the central spindles broke.

Mineral/white spirit - disolves the wax ok, but also softens the plastic leading to breakage and failure.

Ear Wax Remover - still soaking in this - the remover is quite a viscous fluid at room temperature, and thins qute readily with a bit of heat - this product may work out ok if the temperature can be kept 10-15 celcius above roome temperature (think body heat)

Weak NaOH soultion (caustic soda/lye) - still soaking in this - again this is looking promising

One of the main issues I have with the cubes are the spindles breaking - currently they are 0.7mm diameter - this maybe because I am not waiting long enough before attempting to move the parts.

Feel free to add ideas, share attempts, sucesses & failures.

Cheers,
Paul

Subject: Re: FUD wax removal.
Posted by virtox on Fri, 03 Jun 2011 08:37:34 GMT
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I had great results with hot water and (mlid, the eco-stuff) dish soap. (and some patience)

I was able to clean out 0.3 mm through holes in a few mini-Menger cubes. As one can imagine, there is a LOT of support stuck in the holes, the bags were all greasy etc.

I just put them in a jar with the water and soap, and stirred and shaked.
You can see all the wax dissolve a float to the top. Rinse and repeat.

After two runs the yellow was nearly gone and all holes were visible.

While not as brittle as your designs, I can recommend it for cleaning holes.

Subject: Re: FUD wax removal.
Posted by Spoors on Fri, 03 Jun 2011 09:41:58 GMT
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Hi,
I have had good success with Acetone, which was recommended by the guys at Fineline Prototyping (who also use materials by 3D-Systems).
It does not seem to affect the FUD and resolves the wax. Just be careful with the stuff and use gloves.

Cheers,

Jeroen

Subject: Re: FUD wax removal.
Posted by stop4stuff on Fri, 03 Jun 2011 10:12:20 GMT
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Jeroen, thanks for the tip... I think I have some acetone in my garage - and my wife or daughter probably has some nail varnish remover (contains acetone). Also, it just sprung to mind acetone->acetic acid->vinegar - google results show vinegar can be used to dissolve wax

Cheers,

Paul

Subject: Re: FUD wax removal.
Posted by LincolnK on Sat, 04 Jun 2011 16:54:09 GMT
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Have you tried hydrogen peroxide?

Also, I am curious, with the acetone, do you just soak the object in it, or use a q-tip to just wipe away the parts that have the wax?

If you soak it, how long do you soak it for?

Subject: Re: FUD wax removal.
Posted by Spoors on Mon, 06 Jun 2011 06:56:50 GMT
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I do not soak the object in acetone, I just use a q-tip and a brush.

Cheers,

Jeroen

Subject: Re: FUD wax removal.
Posted by tebee on Thu, 09 Jun 2011 05:32:25 GMT
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Going back to the original post why should hot water cause any problems ? Fud is a plastic and should not be affected by water. The only reason I can think of is that it was not properly cured in the first place.

I've had items in it sitting in near boiling water for 40 mins at a time without problems while I've been dyeing it.

Tom

Subject: Re: FUD wax removal.
Posted by stop4stuff on Thu, 09 Jun 2011 13:03:54 GMT
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FUD is acrylic with a softening point lower than boiling water temperature - I think my little cubes failed because the internal parts became deformed and when I tried to move the pieces, they broke... the cubes really are tiny and the wax inside is 0.1mm thick, so surface tension between water & wax is at play too.

I popped a cube in a jar of just boiled water and microwaved it, keeping the water boilng for 5 minutes - after cooling some parts are still solidly joined by wax, and the plastic has gone from transparent to a milky white.

Of all of the things I've tried so far, ear wax remover is ahead, but it does need to be kept at a constsant temperature to thin enough to work on the wax, and yes it has been days now that one cube has been in the remover.

Diluted household amonia solution didn't do much.

I still have yet to try acetone/nail varnish remover.

Subject: Re: FUD wax removal.
Posted by tebee on Thu, 09 Jun 2011 13:23:34 GMT
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Ah OK I've always kept my water just below boiling point , I've noticed even WSF gets quite soft as at that point.

Have you tried mechanical means, like an ultrasonic cleaner? I've got one and find it wonderful for crud out of places you can't easily get to. Look for a friendly dental lab or jeweler near you as they almost certainly have one.

Subject: Re: FUD wax removal.
Posted by Spoors on Thu, 09 Jun 2011 14:14:31 GMT
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Just try the Acetone ... no need to soak it for days ...

Subject: Re: FUD wax removal.
Posted by stop4stuff on Thu, 09 Jun 2011 14:34:26 GMT
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I have one sitting in nail varnish remover right now (I couldn't find the pure acetone I thought I had in my garage)

Will see how it goes.

Subject: Re: FUD wax removal.
Posted by jasolo on Fri, 10 Jun 2011 07:45:30 GMT
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I have tried nail varnish remover (with castor oil) diluted in water with my level-4 menger cube. I dipped it during a couple of hours, but only some superficial holes were cleaned.

Now I'm trying again with Tetrachloroethylene (also called Perchloroethylene), used in dry cleaning of fabrics and to degrease metal parts. The first time I had previously dipped the model in dish soap, and only checked the cleanness of the holes when the model was wet, although I think this method didn't go deep. I'm saying all of this because after using Tetrachloroethylene, the holes seemed uncleaned when wet, but when dried the wax was missing (0.3mm holes). Now FUD looks white, but not transparent, although maybe the complexity of the Menger model makes difficult to see any transparency. I could check this with a simpler FD model that shows some transparency.

Now for the second try I'm using the model used for the nail varmish remover test. I have also diluted the tetrachloroethylene in water, although this substance has low solubility and sinks to the bottom. In the first try I stirred the mix a couple of times during 2-3 hours. In this second try I've stirred once and I'll check the result after 8-10 hours (left at home).

Subject: Re: FUD wax removal.
Posted by jasolo on Fri, 10 Jun 2011 18:17:57 GMT
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Definitely, tetrachloroethylene removes the wax but it must be used purely or stirring when mixed with water, and in less than 1-2 hours. The problem is the material gets really "white frosted" once dried, as when very cold metal condenses the water vapour in air. I've tested that with a FD model and only the flattest surfaces doesn't get white (only in the printed lines) while curved surfaces get

fully white as White Detail material got dyed with tea on curved surfaces.

Subject: Re: FUD wax removal.
Posted by stop4stuff on Fri, 10 Jun 2011 19:07:55 GMT
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Nail varnish remover claims a victim

I kept checking a cube in the nail varnish remover, after 24 hours, there was still wax between about a 1/3rd of the parts, the last time I lifted the cube out, all the bits that were free of wax fell apart.

Ear wax remover is still looking good, even though it is slow.

Subject: Re: FUD wax removal.
Posted by SIXTHSCALE on Sat, 11 Jun 2011 15:19:38 GMT
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has anyone tried Hydrogen Peroxide yet? None of my FUD models have wax on them, so i can't try it myself but i have more complex models coming and am curious if anyone has attempted it... i've noticed that it seems to work better than ear wax remover at removing earwax, and it is much thinner.

Subject: Re: FUD wax removal.
Posted by ErkDemon on Wed, 15 Jun 2011 00:03:17 GMT
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Peroxide: I've tried sitting a smelly yellow "waxy" FUD model in room-temperature peroxide for a couple of days, but it did nothing.

Tried earwax remover (peanut oil with alcohol), and dunked the thing in hot water, the oil that came up to the surface was "yellowy", so some wax had been removed. After repeated dunking in boiling water, alcohol, peroxide and anything else I had to hand in various combinations, the holes in my weeny 4-G Menger sponge have opened up, but the crinkly fractal snowflake sponge is still very yellow. I'll have to give acetone a go.

To be fair, the snowflake sponge is probably a worst-case scanario, the 3cm 4-Gen Menger sponge was pretty pale (just a little smelly), but the snowflake sponge was almost lemon-yellow. That was with about two hundred thousand faces, most at right-angles to their neighbours, and all sorts of voids with multiple pinhole openings, so the surface area and surface tension for coatings on it must be horrendous
I'm sure that normal models are fine in FUD. Actually, I don't mind the smallest holes not all being totally clear (they're so small that it's difficult for people to tell), I'm more interested in getting rid of the colour and the odour with these "jaggy" fractal shapes.

Sharpness and crispness of detail with FUD is really excellent, btw.

Subject: Re: FUD wax removal.
Posted by SIXTHSCALE on Wed, 15 Jun 2011 00:51:48 GMT
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so that wierd dill pickle smell isn't just my imagination?

Subject: Re: FUD wax removal.
Posted by jasolo on Thu, 16 Jun 2011 19:30:45 GMT
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ErkDemon wrote on Wed, 15 June 2011 00:03
To be fair, the snowflake sponge is probably a worst-case scanario, the 3cm 4-Gen Menger sponge was pretty pale (just a little smelly), but the snowflake sponge was almost lemon-yellow.
I had forgotten to post an image after the cleaning with tetrachloroethylene. As I said, the wax disappeared but the material got white on the surface (the holes are 0.3mm wide). The whitening isn't a problem in this model, so many small details makes difficult to see any transparency, but for other models will be surely a problem and tetrachloroethylene has been classified as probably carcinogenic to humans.

File Attachments

1) mengerCleaned.jpg, downloaded 4576 times

Subject: Re: FUD wax removal.

Posted by jasolo on Wed, 22 Jun 2011 21:55:02 GMT
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I have tried two new methods with a new Menger cube:

- The first one is the slowest and consists of putting the FUD model over a paper on a warm ambient (over the router or through the warm air expelled by the computer's power supply fan). The liquified wax gets trapped on the paper, so it must be replaced by a new clean one periodically. After several hours only some clean holes were visible so this method requires a lot of time but is the less aggressive.

- The second one is quicker and uses white spirit (Stoddard solvent), the solvent used in painting. All the holes got clean and the material didn't got white as happened with tetrachloroethylene, but I'm not sure if it affects in another way the surface of FUD/FD objects (no more FD models at hand). Could anyone test white spirit on flat and curved surfaces?.

Subject: Re: FUD wax removal.
Posted by BillBedford on Tue, 05 Jul 2011 16:19:19 GMT
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The white stuff is actually part of the build. It happens when there is an interface between the plastic and the wax support material. See this photo http://www.shapeways.com/forum/index.php?t=getfile&id=89 44&private=0. You can see there is a little trail of white beneath each column of bolt heads where the was has supported the surface detail. Sometimes if you run your finger nail over the model surface you can feel that the white part is slightly raised.
The only way I have found to deal with it is by abrasion, either with a glass brush or by burnishing the surface with a wooden stick.

Subject: Re: FUD wax removal.
Posted by merana33 on Thu, 14 Jul 2011 13:23:36 GMT
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I've had this issue myself and I've been doing quite a bit of thinking on how to address it.

It seems to me that the method that would likely be used in a full production environment would either be a solvent specifically formulated for the support wax, or a heating proccess at a controlled temperature to melt the wax from the part.

Now without knowing the specific formulation of the support wax our best bet would be to do the baking method. The difficulty comes with the fact that most ovens aren't designed to heat slowly over a long period of time.

And then it hit me one morning, every one of us has a low temperature, slow heating oven. Our car dashboard.

So I tossed my waxy parts onto a shop towel on my dashboard one morning after I got to work. By lunchtime most of the wax had melted into the towel. I shuffled the parts a bit to free some support wax that wasn't draining properly and by the time my workday was over, a good 80-90% of the yellow wax was gone.

The parts were a bit softer while warm, but returned to normal once cool.

Now my parts didn't have a whole lot of nooks and crannies so YMMV, but with proper orientation for wax drainage this method -should- work for most designs.

The main concern would be to keep the parts from getting -too- hot and warping, but just cracking your car window open a bit can help mitigate the higher temperatures.

Subject: Re: FUD wax removal.
Posted by stop4stuff on Fri, 15 Jul 2011 08:38:26 GMT
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Well, after a very long time soaking in earwax remover, my 3x3x3 puzzle cube is still not working, all of the wax is soft enough that the parts that aren't fused are free. As you can see from the image below, there's only 2 parts fused, unfortunately they are center pieces and there's no way around the situation apart from making a slightly bigger cube.

Large image here

It seems that there are a variety of methods that work getting the wax out of FUD that are mainly size dependant.

This thread is good resource!

Hey ho, on with the fun FUD

Subject: Re: FUD wax removal.
Posted by minimaker on Fri, 15 Jul 2011 09:48:59 GMT
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I've yet to try what cleaning method works best (my order is still not in) but from the sound of it I could give my putty oven a try. I made it for curing epoxy putty at a constant temperature (normally between 60-76 centigrade) but it could be turned lower. Though it will still be warmer than the dashboard or router.

Subject: Re: FUD wax removal.
Posted by dhammond on Tue, 26 Jul 2011 05:50:15 GMT
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I have had reasonable results using isopropanol (IPA) with a brush then using a low pressure compressed air source to blow out any blocked holes.

Subject: Re: FUD wax removal.
Posted by denali3ddesign on Mon, 15 Aug 2011 18:31:35 GMT
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I am thinking of printing a functioning bolt and nut assembly together(in the tightened position), with perhaps a 0.1-0.2 mm clearance between the threads. After I receive the print, I want to be able to unscrew the bolt for final cleaning, and be able to put it back and tighten it down.

The bolt diameter will be about 6mm, and length about 10mm. Based on the comments in this thread, I'm pretty sure I won't be able to get all the wax out from between the threads prior to unscrewing the assembly, but will it be possible to use the wax as a lube to facilitate the removal process?

Subject: Re: FUD wax removal.
Posted by Magic on Mon, 15 Aug 2011 18:54:36 GMT
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Sorry if I do not answer your question, but ask a question instead: I am wondering why you want to print the bold already in its tightened position?

Subject: Re: FUD wax removal.
Posted by denali3ddesign on Mon, 15 Aug 2011 22:49:38 GMT
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In short, customer request...

Actually, I described part of the design incorrectly - it is not meant to be taken out for cleaning or anything, but just tightened down the final little bit.

Make sense?

Subject: Re: FUD wax removal.
Posted by Magic on Tue, 16 Aug 2011 08:18:09 GMT
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Just my opinion but personnally, if the bolt has to be removed, I would be printed apart (in the same file, but not in its final position). If it has not to be removed I would fuse it with the rest of the design.
Printing in place a part that can be removed is just adding extra risks to the print...
But if it's a custumer request...

Subject: Re: FUD wax removal.
Posted by denali3ddesign on Wed, 17 Aug 2011 13:46:29 GMT
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Thanks for your help, Magic.

Subject: Re: FUD wax removal.
Posted by JamieMcBride on Sun, 21 Aug 2011 21:24:42 GMT
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Has anyone tried removing the wax by sticking the model in a microwave, and give them a good nuking? Or is that likely to end in tears?

What we/Shapeways need is one of these puppies:

http://www.rapid-direction.com/product/3D-PJFIN/InVision-Pro Jet-3D-Finisher.html

I've tried hot water and fairy liquid dunking for several hours, but the model is still decidedly yellow and smelling of the lemony wax material (to my nose). I'm going to try the car/towel/dashboard idea tomorrow, assuming it's sunny

---

Subject: Re: FUD wax removal.
Posted by stop4stuff on Sun, 21 Aug 2011 21:36:59 GMT
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I did have success with the following to remove surface wax residue;

Step 1: scrub nail varnish remover (acetone based) on with a stiff artist's paint brush.
Step 2: put a drop of washing up liquid in a glass with about 100ml water & nuke @ 450w for 1 min.
Step 3: repeat steps 1 & 2
Step 4: rinse really well under clean water.

Gloves and/or tweezers were used so as not to get skin oils on the cleaned model.

The little rubiks cubes never did work out, and I've yet to figure out a way of getting the wax out of enclosed spaces.

Subject: Re: FUD wax removal.
Posted by stannum on Sun, 21 Aug 2011 21:51:58 GMT
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The material page already mentions using an oven, plus a freezer (for separating from the base tray?) and two ultrasound baths, oil one for wax removal and water one for cleaning the oil. So... @_@

Subject: Re: FUD wax removal.

Posted by BillBedford on Sun, 21 Aug 2011 22:15:29 GMT
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I've removed the wax completely by dunking the pieces in a commercial degreaser, the sort sold in car shops for cleaning engines. But be warned: the removing the wax will reveal a spongy surface where the plastic and wax were laid down next to each other.

Subject: Re: FUD wax removal.
Posted by MitchellJetten on Tue, 23 Aug 2011 09:02:15 GMT
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Hi all,

Thank you very much for all these techniques!
Great to see a community working together to see what the best way is of getting rid of the support material / wax.

I do can tell you that we do not deliver any of those models with a lot of wax anymore!
If everything goes alright, you should get a wax free model.

Ohh btw, please smell your model! smells much nicer now

If not, please send an email to service@shapeways.com with a picture of your model, so we can complain at the printing department that they still delivered models with a lot of wax.

Do take in mind, this is only just yet for orders which are delivered since last week (or maybe 2 already)

Subject: Re: FUD wax removal.
Posted by JamieMcBride on Tue, 23 Aug 2011 13:58:50 GMT
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Thanks Bill, Stop4 for the further techniques. Leaving to heat up on the car dashboard worked well yesterday and it's definitely less yellowy now. 28 DegsC on my read out when I got back in the car after work. Grey rainy day in the UK today, so no further heating today.

Thanks for the update Mitchell. I was wondering whether the FUD wax situation would improve at the production end or whether it would be an issue to have fellow enthusiasts buy items with the

wax, so this puts our minds at rest. My part came through in "The Rush" period a month or more back, so maybe the heating process wasn't quite in place to get models out of the door quicker (perfectly understandable).

Subject: Re: FUD wax removal.
Posted by colleenjordan on Wed, 24 Aug 2011 03:18:17 GMT
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Mitchell,

I received models yesterday that were coated in the yellow wax... Are you sure?

Subject: Re: FUD wax removal.
Posted by stop4stuff on Wed, 24 Aug 2011 22:43:36 GMT
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Mitchell Jetten wrote on Tue, 23 August 2011 09:02
...
Ohh btw, please smell your model! smells much nicer now
...

Ana said in tonight's SW live that Baby Shampoo works a treat! (perhaps that's why it smells nicer)

Subject: Re: FUD wax removal.
Posted by colleenjordan on Thu, 25 Aug 2011 00:53:45 GMT
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Any specific type of baby shampoo you would recommend, and how to use it?

I received a lot of models that were coated with a crystalline lemon yellow wax. I've tried soaking them in boiling water, and wiping them with a variety of solvents, like acetone. These techniques work okay. The acetone has worked the best, but still doesn't help out when the wax is stuck inside the model. The downside of this is its not perfect, and there's still yellow crud in inside my models, and I've just exposed myself to nasty chemicals that I wanted to avoid in the first place.

Subject: Re: FUD wax removal.
Posted by minimaker on Mon, 05 Sep 2011 10:34:29 GMT
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Hi,

just did the test with the putty oven and it works like a charm. I've got it at a constant 55 degrees centigrade and the wax melts nicely. Very easy to rub away in a few minutes. Think I found my method for wax removing.

Bye,
Ming-Hua

Subject: Re: FUD wax removal.
Posted by stop4stuff on Mon, 05 Sep 2011 14:41:17 GMT
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@Ming-Hua, do you know if your method also gets the wax off the surface ready for painting?

I picked up an ultrasonic cleaner the other day and was testing that out with different detergents (Johnson's Baby Shampoo, JPL Sea Clean & ordinary wahing-up liquid), but the cleaner broke so I'm waiting on the replacement. The cleaner was able to get most of the yellow staining though.

Subject: Re: FUD wax removal.
Posted by BillBedford on Tue, 06 Sep 2011 14:58:40 GMT
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Be careful of house hold detergents, many have lanolin in them* which can cause problems with paint adhesion.

* to keep hands soft.....

Subject: Re: FUD wax removal.
Posted by stop4stuff on Tue, 06 Sep 2011 15:11:54 GMT

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Thanks for the heads-up Bill. I just checked the ingredients for the products I'm using and luckily none of them mention lanolin... the replacement ultrasonic cleaner with the baby shampoo is working a treat on getting FUD cleaned up (so far), but I will have to test paints on the models to make sure the shampoo is good for the job.

So far, the ultrasonic cleaner is not doing much at all to the little cubes, and I don't expect them to get freed up, so redesign time for them

---

Subject: Re: FUD wax removal.
Posted by minimaker on Tue, 06 Sep 2011 16:29:02 GMT
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I'm not painting my part so I've not checked if no residue is left. i just needed to free the details which were covered and that worked. The wax is still warm when I take the part from the oven so any wax on the model can be wiped off.

I don't know if it helps, but the poor man's putty oven is the traditional lightbulb. Those become fairly warm and can be used as an oven (my first portable oven was actually made using six lightbulbs from my bicycle and four AA batteries). So if you have a desklight you can put a part near the bulb to warm it. Be careful though since they become very warm. I'd not use more than 25 Watt.

Also, if you want me to test how well the oven works on one of your rubic cubes, contact me and we'll see if we can get that arranged.

Subject: Re: FUD wax removal.
Posted by stannum on Tue, 06 Sep 2011 17:46:12 GMT
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How do you control the temperature? You mention 55C, but then say it's a DIY putty oven. Wild guess? Extra circuits to control the light? Periodical manual checks?

Subject: Re: FUD wax removal.
Posted by stop4stuff on Tue, 06 Sep 2011 18:27:50 GMT
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I'm guessing that for a DIY incadesant light oven all that's needed is a thermometer & a drill... test the temperature & drill a hole in the case if it's too hot, repeat as necessary.

@mimimaker - the little rubiks cubes have had plenty of heat & the smallest of internal cavities become wax free, but there seems to be an issue with two of the center squares fusing to the central spindle on all of them - must be a print orientation thing.

Subject: Re: FUD wax removal.
Posted by minimaker on Tue, 06 Sep 2011 19:25:28 GMT
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To avoid misunderstandings. The oven I'm using now has a heat element, not a light bulb: http://img.photobucket.com/albums/v490/minimaker/Mini%20scul pting-Tools/Hotplate_putty_oven/oven1.jpg I set the temperature but choosing the right voltage. And since I'm still using the prototype it does have a hole for a thermometer. That's how I can check the temperature.

The older version of this did have a lightbulb (http://smg.photobucket.com/albums/v490/minimaker/Mini%20scul pting-Tools/?action=view&current=ef93.jpg). But the temperature of this is far less easy to regulate. It was like Stop4stuff saus: touch the metal, too hot, turn off, turn on again after 5 minutes. Hehe, I'm so happy with the new design.

Note, these ovens were not made for wax removal but for curing epoxy putty. Wax is just another thing it seems to be useful for.

Subject: Re: FUD wax removal.
Posted by mctrivia on Tue, 06 Sep 2011 19:54:32 GMT
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i use a convection toaster oven for curing apoxy. not sure if mine will go down to 55C though but I will have to check.

Subject: Re: FUD wax removal.
Posted by stannum on Wed, 07 Sep 2011 20:12:24 GMT

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The drill trick is interesting, but ignores enviroment temperature, air humidity, etc will vary along the year, so internal temperature will vary.

Thanks for the info... with current lamp market, probably better to buy some ceramic resistors, maybe even a sensor so it is just a matter of calibrating a scale on a pot.

Subject: Re: FUD wax removal.
Posted by minimaker on Wed, 07 Sep 2011 22:25:20 GMT
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Yeah, for my purpose some variation in the temperature is allowed. If you do need it you can add a temperature regulator circuit.

Subject: Re: FUD wax removal.
Posted by GWMT on Wed, 09 Nov 2011 22:47:41 GMT
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I got about 98% of the wax out of this piece by setting it on top of the gas fireplace where the heated air comes out. The parts is setting on a paper towel which rests on an 8" drywall knife (any metal plate would do).

I kept turning the part periodically for about 3 hours; the part got hot to the touch but not painfully hot. I'll follow up with a wash in acetone before painting.

File Attachments

1) FUD oven cheap.jpg, downloaded 1696 times

Subject: Re: FUD wax removal.
Posted by LincolnK on Thu, 10 Nov 2011 06:06:24 GMT
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Gas, fire, wax, and paper.

I am glad you are still alive and that your house didn't burn down.

That sounds like a very NOT safe way to extract the wax which I am assuming is probably flammable.

Lincoln

Subject: Re: FUD wax removal.
Posted by GWMT on Thu, 10 Nov 2011 16:01:06 GMT
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You forgot the wooden handle on the drywall knife!

It runs on natural gas (so we still have heat when the electricity goes out) - there's no danger of fire. The combustion chamber is sealed off from the house air; cold house air comes in the bottom, gets warmed up around the chamber and rises out the top. You can hold your hand on the top and not get burned.

It's like setting the part in the sun on your car dashboard on a hot day with the windows closed. A toaster oven is more dangerous than a gas fireplace re: fire.

Subject: Re: FUD wax removal.
Posted by Giga Bread on Sat, 26 Nov 2011 01:19:50 GMT
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Has anyone experimented with a pressure cooker? I know a lot of people use it when casting to remove air bubbles. It sort of would be the opposite process but I wonder if it would help force the melted wax out.

Subject: Re: FUD wax removal.
Posted by darthviper107 on Fri, 23 Dec 2011 16:47:31 GMT
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I've had luck recently cleaning off wax just by running the print under hot water for a few minutes, Probably works well since the hot water will melt the wax a bit and then wash it out. Best part is it won't damage the print and works for delicate parts.

Subject: Re: FUD wax removal.
Posted by Roy_Stevens on Fri, 23 Dec 2011 21:40:04 GMT
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I do a LOT with FUD, so needed a better way. 90% isopropyl alchohol in a $30 harbor freight ultrasonic cleaner does a great job of cleaning my prints quickly. I was using alchohol and a soft bristle toothbrush.

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 05:05:49 GMT
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Hey everyone...
1st Happy New Year to all..

I just got a large order of FUD parts for the battleship. And of course they are full of wax.
So I was thinking what would cut oil/grease and is water soluble.
Then I remembered the oil spills and the animal rescue groups washing the birds and seals with Dawn dish washing liquid. So off to the store on New Years eve to get some.

Mixed a 50/50 solution Dawn and really hot water, filled the ultrasonic cleaner I got from Harbor Freight and ran them through the 3 minute cycle 7 or 8 times.

NO WAX left on the parts. And it did not turn the parts white like when I used Simple Green and water to clean the batch of parts.

Maybe I an on to something. Ok Back into the lab to continue the cleaning...(the kitchen table in my apartment.)

Still messing with the rock tumbler to polish up the parts but I need to get some more grit and experiment with that idea..

Bob

Subject: Re: FUD wax removal.
Posted by stannum on Sun, 01 Jan 2012 05:34:20 GMT
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Did you use the ultrasonic cleaner with Simple Green also? Maybe the trick is the machine, maybe the soap used, maybe both things.

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 06:41:49 GMT
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Yup tried the ultrasonic with the Simple Green and water mix. It turned the parts to white. Simple Green is is a degreaser. It can be used to clean grime and gunk from auto parts if used straight from the bottle.
With that in mind I wanted something a little less aggressive so I tried the Dawn.
I put in really hot water in the ultrasonic cleaner with the Dawn and let it do it thing for about 25 minutes. The ultrasonic cleaner heats the liquid up to a really hot temp after that long a time in the bath.
Rinsed the parts under hot water and let dry. So far things a looking wax free but I will have to have a good look tomorrow.

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 19:00:43 GMT
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Hello
Here are pics of the dawn/water ultrasonic cleaner test from last night. Interesting results. Maybe there is a printing problem with the equipment or process. You can see the difference on the right parts group in the pic. There is a definite separation line half way up the side. Above the line I have a rough frost finish. Below the line is a translucent.
The parts on the left in the photo came out perfect. Translucent, no frosting what so ever.

So what is the variable that is causing this? Most of my other parts have the rough frost look which is going to have to be sanded somehow (rock tumbler maybe). Needless to say there seems to be a bug in the printing process that is causing this.

Pics to follow.

Bob

File Attachments
1) DSCN0718.JPG, downloaded 1428 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 19:02:26 GMT
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Next image

File Attachments
1) DSCN0720.JPG, downloaded 1456 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 19:03:36 GMT
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3rd pic

File Attachments
1) DSCN0719.JPG, downloaded 1490 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 19:05:20 GMT
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4th image

File Attachments
1) DSCN0722.JPG, downloaded 1880 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Sun, 01 Jan 2012 19:07:48 GMT

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5th image

File Attachments

1) DSCN0719.JPG, downloaded 1443 times

Subject: Re: FUD wax removal.
Posted by BillBedford on Sun, 01 Jan 2012 20:45:29 GMT
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As has been explained many many times before on this forum, the frosting happens where the support wax is laid down alongside the plastic material. If the piece is cleaned too aggressively, with solvents or detergents then the surface between the wax and plastic becomes etched in the way these photos show. More than that, if the piece is left in a solvent for too long, the whole surface will become etched.
So what is the answer?
I don't know. There have been various solutions posted here, but none seem the total answer, and, of course, what action is taken will depend on the sort of finish that is needed. In general I would do the minimum possible. If the wax seems thick heating the piece on an absorbant surface may do the trick, as will washing in hot water. I've also heard that washing with Isopropyl alcohol, either in an ultrasonic bath or applied with a aerosol spray will work. I've been told of one company that had some success using two ultrasonic baths, the first with sunflower oil and the second with soapy water, but I have not been able to verify the results.
It is interesting to note that 3D Systems, who make these ProJet machines have nothing on their website about finishing this material. So maybe they don't know what the solution is.

Subject: Re: FUD wax removal.
Posted by Roy_Stevens on Mon, 02 Jan 2012 05:13:12 GMT
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The problem pictured here is not support material frosting. You can see a bit of that type of texture in the center of the round holes in the box. This texture is most certainly a problem with the printer and you should insist that Shapeways provide a re-print. Thanks for the Dawn tip, I'm

going to try that to see if it's as effective as the alchohol. I have to remove the alchohol from the ultrasonic cleaner and put it in an airtight container to prevent it from evaporating when not in use. It has also crazed the plastic parts of the cleaner.

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 02 Jan 2012 05:36:09 GMT
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I learned that heated 91% alcohol crazed the see through top of my ultrasonic cleaner today. Spent some time sanding and polishing it to it's clear original see through condition. I guess the next time the top stays open.

Thanks for the heads up on the printing problem. I thought that something was messed up by the frosting being half way up the side of the parts enclosure. So it looks like I have 1 good usable set of parts and the rest of the orders are trashed. As in junk ! I have invested some hard earned cash into this and do not want to have to repeat the cash layout.
I will definitely be talking to somebody about this.

As this is the first exposure I have had with 3D printing from Shapeways I do not want to get all worked up when I order other parts that are FUD.

Bob

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 02 Jan 2012 06:11:53 GMT
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Some close ups of the messed up printing on my parts. Even 1 searchlight has a "good" spot on it and the rest is rough frost junk.

File Attachments
1) DSCN0727.JPG, downloaded 1375 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 02 Jan 2012 06:13:36 GMT
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And another

File Attachments
1) DSCN0731.JPG, downloaded 1797 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 02 Jan 2012 06:15:29 GMT
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More frost that is useless

File Attachments
1) DSCN0729.JPG, downloaded 1334 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 02 Jan 2012 06:17:26 GMT
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More

File Attachments
1) DSCN0728.JPG, downloaded 1324 times

Subject: Re: FUD wax removal.
Posted by darthviper107 on Mon, 02 Jan 2012 06:33:55 GMT
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Yeah, if the roughness is that intensive then that's a printing error.

Subject: Re: FUD wax removal.
Posted by BillBedford on Mon, 02 Jan 2012 12:29:52 GMT
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Except the roughness was not there before the pieces were subjected to the ultrasonic bath. Without 'as received' photos we can't tell what damage the ultrasonic did.

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 02 Jan 2012 13:14:43 GMT
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Another variable that just dawned on me... My parts are not arriving in 1 shipment. They trickle in several packages over the span of 2 to 3 weeks.
This would indicate that they are not being printed in a single print job. I got 2 shipments with 1 set of parts in each package. Then the larger order showed up. I am still awaiting for the last package to arrive this week. Will photograph them before cleaning for sure.
So it seems logical to assume that the printing parameters may change from 1 run of parts to the next. Maybe the Shapeways print team have more than 1 printer running FUD parts.

Subject: Re: FUD wax removal.
Posted by Giga Bread on Mon, 02 Jan 2012 13:21:24 GMT
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I think this is the case. I received one of my "krake head" models and it had a lot of quality to the print with no frosting. I ended up trading it and ordered a couple more and these are no where near the same quality. I figure they have to have different machines running prints and just like 2D printers, no 2 printers deliver the same results

Subject: Re: FUD wax removal.
Posted by Kaczor on Sat, 04 Feb 2012 15:44:22 GMT

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I DO NOT recommend ultrasonic + isopropyl alcohol. It will ruin your model..

Subject: Re: FUD wax removal. FUD plastic
Posted by pumpjet on Sat, 17 Mar 2012 23:52:52 GMT
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Interesting info from supplier.
I found the MSDS for FUD.
Called the supplier, 3DSystems, and spoke to an applications engineer. He said an ultrasonic bath using corn oil heated to between 60 -70 C (140-158 F) for about 10 -15 minutes will get all the wax that is left over from the build process off the model.
So i tried it and it does work. NOTE: oil does not dissipate heat as rapidly as water does so it was still extremely hot after the bath. Then an ultrasonic bath with Dawn dish washing soap and final rinse.

They do look good. He said the corn oil will bring back the translucence to the part. As my parts are already cleaned I will need to experiment with the heavy frosted parts have from the 1st batch of parts that I ordered.

VisiJet SR 200 Plastic is FUD. It is an acrylic material according to the app. engineer. He said there should be no problems with painting with acrylic paints (my choice).
So the next order gets a bath of corn oil when I get them.

Bob

Subject: Re: FUD wax removal. FUD plastic
Posted by Roy_Stevens on Sun, 18 Mar 2012 05:11:40 GMT
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The translucence is a lie, all the corn oil does is fill in all the microscopic gaps, it's the heat that removes the wax. But it's not the wax that messes with me, it's the oil. It makes painting all but impossible. I still use isopropyl alcohol. It can damage a print if exposed for long periods of time, but I never leave my parts in the ultrasonic for more than ten minutes. It strips all that ridiculous oil, and any residual wax. What it won't do is remove large wax globs.

Subject: Re: FUD wax removal. FUD plastic
Posted by AmericanArchetype on Sat, 31 Mar 2012 03:53:04 GMT
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For clean up of FUD, I soak the part in a product called Bestine. It's an artist's solvent used for removal of rubber cement and other similar materials. It turns FUD a bright white almost instantly on contact but seems to remove any wax and residue.

I know a friend of mine that soaked his for 48 hours with no damage to small details. I soak mine for only about 10 minutes. Then I remove it and do a light brushing with an artist's brush and then return to the bath. I do that until I'm happy with it and this has been the easiest method I've found without heat or scrubbing.

Also, I've painted FUD treated in this way with acrylic paint with no issues. Have not tried solvent based paint.

Subject: Re: FUD wax removal. FUD plastic
Posted by stonysmith on Sat, 31 Mar 2012 23:59:00 GMT
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FrankNScale wrote on Sat, 31 March 2012 03:53I soak the part in a product called Bestine.

I tried the Bestine, and it worked quite well.. took driving all over town to find it.. finally found it (only) at Michael's. It comes in a metal can, and I would strongly advise that you only use it in a properly ventilated space. I put some of the Bestine in a small tupperware type container.. it didn't eat the container, but after 2 days it had all evaporated from the sealed container.

Subject: Re: FUD wax removal. FUD plastic
Posted by sbruins on Tue, 03 Apr 2012 17:53:50 GMT
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Old post but I thought I would put in my $0.02

We have a ProJet here at our shop and we use corn oil to clean out parts. It works great and the parts maintain a good surface finish and keep their "transparent" appearance. If you NEED to get rid of the oily residue you can clean the parts in with whatever cleaner you want but they all seem to leave the "frosting" you are seeing.

Subject: Re: FUD wax removal. FUD plastic
Posted by Mark W on Mon, 16 Apr 2012 07:42:16 GMT
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This weekend I went out in search for Bestine on the recommendation of FrankNscale.

While I didn't find Bestine, I browsed the cleaners and spotted Goo Gone and De-Solv-It Citrus.

De-Solve-It was more expensive (~9 bucks), but the label says it specifically removes wax, among others. As I was on a budget I saved this product for my next go.

Goo Gone was 3 bucks, so I picked one up.

The process took just minutes and resulted in perfectly clean, wax free model (with no discoloration/whitening), ready for paint. I'm surprised that Goo Gone has not been discussed before.

1. Rinse and brush away any large blobs of wax.
2. Using a toothbrush that has been sitting in hot water (which softens it's bristles), dip the brush and FUD part in Goo Gone and lightly scrub all surfaces 2-3 times. Rinse/swash the brush every so often to remove the removed wax so you don't just spread it around. Re-dip the brush in Goo Gone and continue.
3.Quickly rinse and brush again in warm-soapy water.

Done.

Subject: Re: FUD wax removal. FUD plastic
Posted by stop4stuff on Mon, 16 Apr 2012 07:56:51 GMT
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Sounds like good stuff, which variety of Goo Gone did you use? Have you tried painting cleaned parts yet?

Subject: Re: FUD wax removal. FUD plastic
Posted by Mark W on Mon, 16 Apr 2012 08:01:10 GMT
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I'm not aware of different varieties of Goo Gone, but my bottle says Citrus Power.

Here's a painted (no primer), Goo Gone cleaned, model.
(Black is Polly Scale Acrylic, Red and Yellow is Testors Enamel)

Subject: Re: FUD wax removal. FUD plastic
Posted by pumpjet on Wed, 18 Apr 2012 13:01:36 GMT
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Goo Gone sounds interesting. Is there any particular brand of soap used to final cleaning?
I was thinking of the post that mentions soap can contain Lanolin which can have effects on the FUD.

Bob

Subject: Re: FUD wax removal. FUD plastic
Posted by BillBedford on Wed, 18 Apr 2012 14:01:48 GMT
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Lanolin should have no effect on FUD at all, though it may prevent paint adhering properly.

Subject: Re: FUD wax removal.
Posted by CharGyse on Thu, 10 May 2012 09:57:26 GMT
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I have a suggestion that might work well to break up chunky bits on some pieces: Dental floss. I was about to consider using some on my pendants when I realised it could be used on models like the mini rubiks cube.

Subject: Re: FUD wax removal.
Posted by nickdk on Fri, 01 Jun 2012 16:11:23 GMT
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I expecting a FUD part pretty soon that consists of a grid with 0,4mm thickness and 8mm between

the sections, first this model was rejected due to that it probably would warp at cleaning, but I might get it anyway since I would take the risk of warping and I was wondering what's the best way to clean such a structure, I have read this entire thread and there's many options to choose from but since my model is an open grid i guess leaving it in a hot space would cause the wax to melt and escape the grid, but I haven't ordered any FUD before so maybe it's not as easy as i imagine?

Subject: Re: FUD wax removal.
Posted by stonysmith on Fri, 01 Jun 2012 18:05:29 GMT
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If you live in the US and have a Michael's Hobby store nearby, Bestine is great for cleaning FUD

Subject: Re: FUD wax removal.
Posted by nickdk on Fri, 01 Jun 2012 18:33:35 GMT
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stonysmith wrote on Fri, 01 June 2012 18:05If you live in the US and have a Michael's Hobby store nearby, Bestine is great for cleaning FUD

I'm in Denmark :S I haven't heard about Bestine, but what's the ingredients? Maybe they something similar here, but I think the biggest challenge is that I'll have 1 try only for this so the method needs to really work the first time.

Subject: Re: FUD wax removal.
Posted by stop4stuff on Sat, 02 Jun 2012 19:14:35 GMT
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This link will help for info about Bestine.

Subject: Re: FUD wax removal.
Posted by nickdk on Sat, 02 Jun 2012 19:20:58 GMT
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stop4stuff wrote on Sat, 02 June 2012 19:14This link will help for info about Bestine.

Thank you for the hint!
I have searched for Bestine and can see it's not really available to me over here. But is the product so good that I should order something or, based on my explanation, would other methods be just as good for removing wax from such a grid structure?

Subject: Re: FUD wax removal.
Posted by stop4stuff on Sat, 02 Jun 2012 19:42:09 GMT
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try this link

Although, I've not tried it myself ithers have had good results with the product. I'm waiting on a delivery for some FUD prints (~11th) and will be using an ultrasonic cleaner.

Subject: Re: FUD wax removal.
Posted by Roy_Stevens on Sat, 02 Jun 2012 19:42:49 GMT
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I use 90% isopropyl alcohol because, frankly, I don't like the idea of washing my models in gasoline.

Subject: Re: FUD wax removal.
Posted by rkapuaala on Sun, 01 Jul 2012 05:15:46 GMT
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I've read through most of those, and tried most. I have not read through all of these suggestions so maybe this method has already been mentioned.
I have minor success with chemicals because of the nature of my model,
Finally I took the figure and placed it on a couple of paper napkins and went over it with a hair dryer. You don't have to get it too hot for the wax to start flowing, just move the hair dryer over the piece back and forth and in no time the wax perculates out of the holes in the model.
Then clean off the residue which has deposited itself on the outer surface with the solvent of your choice and a cloth applicator that sheds no lent.
I use an old piece of linen cut up.
I found it also helps to clamp the napkins down to keep them from getting blown all around by the

hair dryer.
Sorry if this method has already been mentioned.

This is a transparent view of the figure to give you some idea of the amount of wax I am talking about.
This particular figue has 2 holes. One 2 mm hole at the top of the head and one 1 mm hole at the bottom of the torso.

File Attachments

1) meshlabcavity.jpg, downloaded 1340 times

Subject: Re: FUD wax removal.
Posted by Phxman on Fri, 03 Aug 2012 05:14:26 GMT
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Subject: Re: FUD wax removal.
Posted by kristgy on Fri, 05 Oct 2012 11:42:58 GMT
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Just to share one more war story:

I have a model with mm scale encapsulated channels. I have had good success with the following method:

1) Heat the model up to 60Â°C to melt the wax.
2) Pressurize the channels with a syringe to push out the molten wax.
3) Push through toluene (a standard organic solvent), to clean away any wax residues.

The toluene doesn't seem to dissolve or discolor the plastic. I haven't tried painting the models, but I assume it works after the toluene has dried.

Just be sure to use adequate ventilation and be aware of the fire hazard when working with toluene (as always consult the Material Safety Data Sheet for any new materials, for example here:

KBG

Subject: Re: FUD wax removal.
Posted by stonysmith on Fri, 05 Oct 2012 17:50:36 GMT
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kristgy wrote on Fri, 05 October 2012 11:423) Push through toluene (a standard organic solvent), to clean away any wax residues.

Have you tried Heptane? There's a product called Bestine available from hobby stores such as Michaels. It has worked very well for me cutting the wax.

Subject: Re: FUD wax removal.
Posted by BillBedford on Mon, 08 Oct 2012 14:42:27 GMT
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Toulene is not something you really want to use without a fume cupboard. See section 11 of this

---

Subject: Re: FUD wax removal.
Posted by kristgy on Mon, 08 Oct 2012 15:10:58 GMT
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Thanks, for the suggestions on heptane. I am in Sweden, so I am not sure I will find Bestine in stores here, but I will try to see if I can get hold of heptane in another form. It is of course preferable to use the least nasty chemical that will do the job.

I am working in a fumehood with the toluene, and that is definitely advisable.

KBG

Subject: Re: FUD wax removal.
Posted by Esoteric777 on Tue, 04 Dec 2012 06:12:04 GMT
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so you can or cant use acetone?

mine had some kind of crystalization on it still trying to figure out how to get that off any ideas?

Subject: Re: FUD wax removal.
Posted by Phxman on Tue, 04 Dec 2012 16:35:55 GMT
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My recent FUD deliveries no longer have the hard wax to remove, instead there
is an oily sludge deposit that flushes easily with a hot water jet and w/up liquid.

Post-production, I think Shapeways must sometimes use a solvent to either
chip-out items or check detail is present on very small items.

Subject: Re: FUD wax removal.
Posted by Giga Bread on Tue, 04 Dec 2012 17:54:59 GMT
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Phxman wrote on Tue, 04 December 2012 16:35My recent FUD deliveries no longer have the hard wax to remove, instead there
is an oily sludge deposit that flushes easily with a hot water jet and w/up liquid.

Post-production, I think Shapeways must sometimes use a solvent to either
chip-out items or check detail is present on very small items.

Same here. I just soak my parts in isopropyl alcohol for a few minutes and its a perfect surface to paint.

My last three orders have been excellent and I'm considering making my parts public again.

Subject: Re: FUD wax removal.
Posted by nanomaquette on Tue, 30 Apr 2013 09:39:31 GMT
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i have found a very simple way for wax removal: compressed air.
i washed my last FUD-prints with some "nail polish remover" (without acetone) and then literally blown away the liquid with compresed air.
That works for me better than anything i tried before!

Subject: Re: FUD wax removal.

Posted by patmat2350 on Sat, 27 Jul 2013 16:01:13 GMT
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I've had about the same results with warm water and Spic n'Span soap, floor wax stripper, lacquer thinner, Bestine, and paint thinner. And all leave the tenacious frosty surface on parts which needs to be mechanically abraded away (which includes Grit Blasting, see the other thread here).

Due to the cruddy surface, I am loathe to offer any detail parts for public sale, ruining my plans to take over the world (drats!).

What really puzzles me is Shapeways' and 3D System's silence on this topic. Come on people, this is YOUR process, make some recommendations!

Subject: Re: FUD wax removal.
Posted by Giga Bread on Sat, 27 Jul 2013 19:09:46 GMT
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I think the only way to get a clear result is by molding and then casting in a vacuumed clear resin. Even if you successfully cleaned an item and got a clear result, it's always ging to be at risk down the road.

Subject: Re: FUD wax removal.
Posted by rkapuaala on Sat, 27 Jul 2013 19:17:13 GMT
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I have been getting better and better prints. I've also gotten better at removing the crusty frosting stuff. A couple of bathes in simple green,,, dry,,, bathe in alcohol,,, dry then finally use a tooth pick or a bamboo skewer and a little pressure to rub the crust off.
Before you make molds, you really need to get that crust off.
Here are some castings from most recent prints.

File Attachments

1) mzM.jpg, downloaded 590 times

Subject: Re: FUD wax removal.
Posted by BillBedford on Sat, 27 Jul 2013 19:40:08 GMT
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What I have found is that painting the crusty bits with a liquid styrene glue, such as polyweld or MEK/butanone using a stiff (hogs hair) brush will remove the crusts. My work flow is something like -- ultrasonic with lots of detergent -> dry -> paint with polyweld -> ultrasonic -> dry -> acrylic paint -> sand -> ultrasonic -> dry -> acrylic paint, and maybe repeat the last sand/paint cycle.

Subject: Re: FUD wax removal.
Posted by svenvanderhart on Mon, 25 Nov 2013 20:51:51 GMT
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It looked like the days of a thick layer of wax were behind us, but in my last order I received one bag with my models almost clean and 10 minutes in White Spirit cleaned them up. But another bag with thick wax stuck to it. I am puzzled why two similar products, ordered at the same time, are so completely different in the amount of wax left on the products. I've tried white spirit, I've tried 6 minutes in 60 degrees C ultrasone bath and 10 minutes in an 70 degrees oven. No change at all. Any idea's?

File Attachments

1) IMG_4741.jpg, downloaded 85 times

Subject: Re: FUD wax removal.
Posted by pumpjet on Mon, 25 Nov 2013 22:49:00 GMT
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Hello
I had the same problem with my parts. I used Bestine in the ultrasonic cleaner which cut the wax. What you are seeing looks like mine did
after a ultrasonic bath. But I now use an air eraser and baking soda and that process gets all that junk off the part. Harbor freight freight is where I got mine for $25.

So I do some baking soda sandblasting and my parts cleaned up just great.

Bob

Subject: Re: FUD wax removal.
Posted by MitchellJetten on Tue, 26 Nov 2013 10:26:58 GMT

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The Zebra effect

Email Customer Service with the picture and the order number so you can get a reprint
This effect happens from time to time and we don't really know what is causing this

Normally we reprint this right away, but it's not always visible due to the translucent material.

Subject: Re: FUD wax removal.
Posted by svenvanderhart on Tue, 26 Nov 2013 11:41:06 GMT
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Thanks for the replies.

@Mitchell: That is sorted, thank you. I just thought it wasn't worth a re-print and imagined I could get rid of it easily. But on my models I can't use a brush, as suggested several times in this thread. It has to come off by melting or rinsing, but didn't.

Subject: Re: FUD wax removal.
Posted by pumpjet on Tue, 26 Nov 2013 14:18:51 GMT
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This thread has photos of my parts after the baking soda thing:

https://www.shapeways.com/forum/index.php?t=msg&goto=700 79&#msg_70079

These are smaller than a pencil eraser tip also

Bob

Subject: Re: FUD wax removal.
Posted by svenvanderhart on Tue, 26 Nov 2013 14:34:12 GMT
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Interesting read, but I don't see myself going that far. It's wax, so it should be "meltable", isn't it? The right fluid in combination with the right temperature should be able to dissolve it, right? My model has walls and parts behind walls, with fine rods inside, so "blasting" it is not option.

Subject: Re: FUD wax removal.
Posted by rkapuaala on Tue, 26 Nov 2013 17:38:07 GMT
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I prefer to use a combination of heat and baking soda and some burnishing for mine. Last Friday I received a print that while not horrible, was not as good as the prints I have been receiving. The problem was with residue from the support material all over the face. Fortunately it is a 1:6 head and was not difficult to clean up quickly but I missed my window of opportunity to go to production at a relevant time due to shipping.
It shipped in record time, in fact 4 days after the order was placed, but UPS did not deliver it till 7 days after it was shipped. It just languished in some backwater warehouse in NY before actually being sent to me.
I wish Shapeways had an option to ship USPS. The United States Postal Service ships first class mail up to 13 oz for a couple of bucks and I have never seen them take more than 3 days to deliver a package from New York to California. UPS makes sure that your package is delivered the maximum number of days you pay for while the U.S. Post Office delivers all packages as soon as they can.

File Attachments

1) 11.jpg, downloaded 389 times