
Subject: Dyeing Results

Posted by [clsn](#) on Fri, 15 Oct 2010 02:54:37 GMT

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Everyone seems to talk about using Rit fabric dyes, but I haven't seen much about the details. I guess just following the directions on the package works. But I figure I should do a little more experimenting, since I want to do this in as little space and time as I can, and because I'm probably working with very small models for the most part.

So, a modest experiment with at least a little quantifiable control: pieces from the incorrectly-printed "rattling bones" I ordered a few weeks ago, using Denim Blue, Scarlet, and Golden Yellow dyes, one teaspoon (5ml) of dye powder in 4oz (120ml) of hot water, microwaved (my hot water heater was taking it easy) to get it to around 120-125 degrees F (50°C), steeped for about 5min (300s), microwaved a little more to get the temperature up again and then given another five minutes. The results may or may not be well represented by this picture, but were acceptable for me. Not incredibly full-saturation mega-vivid, but definitely colored pretty deeply. The blue looks kind of purplish, and the red especially shows incomplete saturation. But very acceptable, very simple, and it makes details a whole lot easier to see.

Have to try some detail material too. May have to go cooler than the directions recommend; detail material isn't very heat-tolerant.

File Attachments

1) [DSCN0092.JPG](#), downloaded 1560 times

Subject: Re: Dyeing Results

Posted by [Magic](#) on Fri, 15 Oct 2010 05:53:12 GMT

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Nice experiment!

I am curious to know about the durability.

Will the colors be as vivid in one or two months? Or will they be washed out?

Please keep the models stored somewhere and let us know in one month or two!

Subject: Re: Dyeing Results

Posted by [Drawn-SteelHero](#) on Fri, 15 Oct 2010 11:30:09 GMT
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Beautiful results! I never even thought of using the microwave!
I take it you heat the water in some kind of disposable plastic container?

Andy

Subject: Re: Dyeing Results
Posted by [clsn](#) on Fri, 15 Oct 2010 13:09:04 GMT
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Drawn-Steel Hero wrote on Fri, 15 October 2010 11:30 Beautiful results! I never even thought of using the microwave!
I take it you heat the water in some kind of disposable plastic container?

Andy

I've been using ordinary disposable plastic cups. I figure the water isn't getting all that hot; it isn't going to melt them.

I think the Rit website also mentioned using the microwave. Probably for more serious stuff you'd want to get it hotter; they say the hotter the better for dyeing (if possible, they suggest putting the pot on the stove and simmering it). There's also something to be said for weaker colors; a light tint can make detail (like, say, numbers) many times easier to read than white-on-white.

(Alumide looks so awesome by itself it seems a shame to try to dye it, but I wonder how it would turn out. Might think twice about microwaving the cups after adding the sample, though. The aluminum dust may well be too small to cause problems with metal-in-the-microwave... or maybe not.)

Subject: Re: Dyeing Results
Posted by [Drawn-SteelHero](#) on Fri, 15 Oct 2010 13:15:56 GMT
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clsn wrote on Fri, 15 October 2010 13:09 Alumide looks so awesome by itself it seems a shame to try to dye it, but I wonder how it would turn out. Might think twice about microwaving the cups after adding the sample, though. The aluminum dust may well be too small to cause problems with metal-in-the-microwave... or maybe not.
That's a really nice idea. Theoretically you could wind up with a nice metal flake effect. I'm looking

forward to seeing how that turns out if you do try it.

Andy

Subject: Re: Dyeing Results
Posted by [clsn](#) on Fri, 15 Oct 2010 14:07:56 GMT
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OK, preliminary report on dyeing White Detail by the same method:

Something of a failure, in the sense of "way too successful." I used a dye solution that was only half as concentrated as yesterday's, and the water was probably not quite as hot, and only in for five minutes... And the die is practically completely black. Going to see if I can salvage it with some delicate sanding. Kind of similar to the problem I had with tea-dyeing already.

Hm. So, for detail material, have to go REALLY dilute, I think.

Subject: Re: Dyeing Results
Posted by [jeff](#) on Fri, 15 Oct 2010 14:50:05 GMT
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this thread couldn't of been timed more perfectly. I've been planning on trying some RIT dyeing, was just on their site oicking out colors, and couldn't remember if the powder or liquid was the best way to go. I see clsn uses the powder, has anyone used the liquid dye?

Subject: Re: Dyeing Results
Posted by [gibell](#) on Fri, 15 Oct 2010 15:29:24 GMT
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I use both liquid and powder RIT dyes, there isn't much difference between the two. But the particular color does seem to matter. A lot of the colors seem to come out too dark, others blotchy. I use a 10:1 ratio of liquid dye to water and 40:1 (by volume) for the powder. I heat water up in an old pot on the stove. After it boils, I turn the heat off and add the pieces. I do not simmer the pieces, but let them soak for 5-20 minutes (depending on the color).

One tip is to soak the pieces in water for at least 10 minutes before dyeing. If you put them in dry they may not absorb the dye as uniformly.

The RIT colors of scarlet, royal blue always seem to work well. Kelly green is tricky and usually comes out too dark in my opinion. You can see some pieces dyed in these colors at

<http://www.shapeways.com/model/91432/>

<http://www.shapeways.com/model/113323/>

I haven't noticed any fading, but maybe I should look back at these pieces ...

Subject: Re: Dyeing Results

Posted by [clsn](#) on Fri, 15 Oct 2010 15:40:20 GMT

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@gibell: yeah, I think it was your picture of your Reuleaux Solids that made me want to try this out. You seemed to get such nice uniform and reasonably deep colors, without having to go with the current Shapeways palette, and without adding any bulk from acrylic paint, etc. I went with the powdered dyes mostly because they're slightly cheaper than the liquids.

My teaspoon-to-half-cup amounts to a 24:1 ratio, so it's been rather more concentrated than yours. But perhaps too concentrated (I think I need to buy another white detail piece; sanding is doing a patchy job of fixing this).

Scarlet for me came out a little undersaturated... Probably better for my purposes than if it were more saturated, but there's a distinct pinkish/whitish cast to it (the picture makes it look more saturated than it is). The golden yellow came out really bright. I was using denim blue, not royal blue, so had different results. I also tried dark green, which turned out more gray than green (and pretty much black on white detail).

Have you tried rolling your own green with blue+yellow, etc? Might work better than the pure green. Or worse. Ditto for other secondary (& tertiary) colors.

Still want to get a good pastel kind of color; it's probably really good for dice.

Subject: Re: Dyeing Results

Posted by [gibell](#) on Fri, 15 Oct 2010 16:25:47 GMT

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I did try making green from yellow. The thing is that *very* little blue is needed to make green from yellow. I added too much and it came out too dark. I have yet to create a green as nice as Shapeways "Summer Green".

Colors often look different in real life than the photos! If you show someone a purple puzzle piece alone, most people will tell you it is blue. Then you add a blue piece, only then do they realize the original one is more purple, and it starts to look purple. Color perception is a subtle thing. In real life, it is usually harder to differentiate some of the colors.

I've not tried dyeing the detail materials ...

Subject: Re: Dyeing Results

Posted by [stop4stuff](#) on Fri, 15 Oct 2010 16:35:24 GMT

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clsn wrote on Fri, 15 October 2010 13:09[Alumide looks so awesome by itself it seems a shame to try to dye it, but I wonder how it would turn out. Might think twice about microwaving the cups after adding the sample, though. The aluminum dust may well be too small to cause problems with metal-in-the-microwave... or maybe not.

As long as the Alumide is completely surrounded by water there won't be any reaction with the microwave radiation. The frequency of the microwaves is tuned to excite water molecules, but can heat metal if there is no water present to absorb the scatter pattern... eggs or part cut grapes can cause more issues in a microwave oven than metal and can be just as spectacular.

Subject: Re: Dyeing Results

Posted by [jeff](#) on Fri, 15 Oct 2010 18:32:26 GMT

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Gibell, thanks for adding to the discussion- very helpful tips!

and to add to the color comments- getting true color representation from a photo is difficult, but to compound that- every screen that people are using to look at the photos are calibrated differently, so seeing the color in person can always be a surprise compared to what you saw on the internets.

Subject: Re: Dyeing Results

Posted by [clsn](#) on Fri, 22 Oct 2010 01:30:04 GMT
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OK, some more results.

Four ounces of water with just a "pinch" of Rit powder still does a pretty nice job of dyeing, though as one would expect it's a lot lighter (which was what I was aiming for anyway). Dark green dye, however, still dyes as grey.

Alumide takes dye quite nicely, thankyouverymuch, and looks positively striking in red (the alumide dye was closer to full-strength, not like in the above paragraph). Looks all red *and* sparkly. (thin piece cracked during too-rough drying, though; most sad.)

Only allowing one picture, so here's one of the dyed alumide, a wireframe from a misprinted die, dyed (!) with dilute red, so it's more pink, and another misprint dyed in stronger red, which was half dipped in acrylic floor wax (Klear, Future, etc) first. Not sure which half, though... May have made a small difference, some of the points look a little less dyed. That might have been normal variation though.

File Attachments

1) [DSCN0106.JPG](#), downloaded 1428 times

Subject: Re: Dyeing Results
Posted by [clsn](#) on Fri, 29 Oct 2010 15:56:06 GMT
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Here's another picture of most of my dyed pieces together. I hope the color is not too badly misrepresented.

From left to right the colors are:

Tan, Scarlet, Golden Yellow, Teal, Dark Green (the blackish one in the far background), Scarlet (in foreground; don't know why it's paler than the other one), Scarlet (next to the teal; this one is lighter because it was dyed with a weak solution), Denim Blue (foreground), Royal Blue (background), Purple, undyed.

Hope you can follow what's what, I wasn't thinking how to label them when I placed them on the

table.

File Attachments

1) [DSCN0108.JPG](#), downloaded 1363 times

Subject: Re: Dyeing Results

Posted by [lordnorth](#) on Thu, 11 Nov 2010 15:17:30 GMT

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In the following thread about tea dying, Whystler has some suggestions for time and concentration using RIT dyes about half way down the page. He's apparently had fairly good, consistent results with color. Key point, though - only detail material will take color to any extend. WSF doesn't dye well.

<http://www.shapeways.com/forum/index.php?t=msg&th=568&am p;start=0&>

Subject: Re: Dyeing Results

Posted by [clsn](#) on Fri, 12 Nov 2010 04:11:15 GMT

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lordnorth wrote on Thu, 11 November 2010 15:17In the following thread about tea dying, Whystler has some suggestions for time and concentration using RIT dyes about half way down the page. He's apparently had fairly good, consistent results with color. Key point, though - only detail material will take color to any extend. WSF doesn't dye well.

<http://www.shapeways.com/forum/index.php?t=msg&th=568&am p;am p;start=0&>

Yeah, I saw those, even tried tea-dyeing once (didn't work out so great for me). My experience has been different: WSF takes Rit-color great, detail doesn't do so well, as it seems to get overdyed. There may be ways to keep it from overdoing, but I haven't gotten that working yet.

I think it was tea and wine dyeing that didn't affect WSF appreciably.

Subject: Re: Dyeing Results

Posted by [virtox](#) on Fri, 12 Nov 2010 08:21:05 GMT

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I have done some experiments with WSF dyeing using fabric/textile

dye.

Googling tell's me; There are multiple variant, "cold-wash", "all purpose" (union) and "permanent fabric dye" (reactive) Nylon seems to work well with the union type dyes.

In the Netherlands I can only find "Dylon", and I use the small tin cans which need added salt. Seems awfully familiar to what I've seen of RIT?

I just put an old pan on the stove and let the whole mixture simmer slowly according to the instructions that came with the dye.
(while heavily stirring)

For more complex objects, it's hard to get an even color, but I've have been way too impatient in my experiments (too many objects at once, not long enough, too long)

So far, it seems to be a trade-off between even result and dark or light and uneven.

As WSF has a tendency to absorb the dye like crazy.

So yellow quickly turns orange. Black well, gives a nice deep black

I expect most colors to be a lot darker on WSF.

But I definitely need to refine my procedures

Cheers.

Subject: Re: Dyeing Results

Posted by [gibell](#) on Tue, 23 Nov 2010 15:13:40 GMT

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Heads up, I just had a customer order canceled because the WSF parts "could not be dyed". Apparently this is due to the fact that the object is hollow with powder trapped inside. Shapeways is unable to dye such objects because "model is full of stains because of the left over powder."

The odd thing is that I have dyed the same model than was canceled myself with no problems. See the photos under the link.

However I have noticed that pieces with powder trapped inside do dye differently. One part I dyed in yellow ended up with these strange black marks on it. It looked like it had something to do with the trapped powder inside. A month later now, I checked that part and the black marks are gone!?? It looks fine now.

Anybody else had problems dying WSF with powder trapped inside?

Subject: Re: Dyeing Results
Posted by [TomZ](#) on Tue, 23 Nov 2010 16:29:35 GMT
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I've tried dying a trapped-powder item myself (Dylon #8, black), and the result wasn't that good. It wasn't terrible either, I certainly regarded it as usable.

Subject: Re: Dyeing Results
Posted by [gibell](#) on Tue, 23 Nov 2010 21:32:47 GMT
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Sometimes I've seen darker blotches where the dye apparently seeps all the way into the powder. I've only seen it happen with the lighter colors. The blotches look bad, but when the part completely dries out (which may take several weeks) they disappear and the color looks normal. Maybe baking them in a low temperature oven would dry them out much faster.

Subject: Re: Dyeing Results
Posted by [Drawn-SteelHero](#) on Fri, 19 Aug 2011 16:51:11 GMT
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Something's just occurred to me - has anyone here tried dyeing Transparent Detail? I've got a couple of things that I'd love to try as clear coloured pieces, and I'm wondering how well TD takes dye while staying transparent.

Subject: Re: Dyeing Results - Anybody want to get Rusty?
Posted by [dhawktx](#) on Wed, 24 Aug 2011 14:22:46 GMT
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Can anyone give a safe upper temperature for heating the dyebath for WSF? I was pre-dyeing some of stop4stuff's .7mm chain maille and was NOT wanting to find a puddle of WSF at the bottom of the bath, so I only used hottest tap water temp + soaking overnight, using an entire RIT black powder package with about 2 cups of water.

Only part of the dye took, and on standard WSF (not polished), it looks remarkably like crusty rust. While it's not what I was looking for originally, I like that look for future projects. Tried it again with a room temperature bath and got the same results on some Whystler pieces. All pieces had been pre-washed with a sonic cleaner and a heated cleaning solution.

Chain maille dyed overnight in strong Rit Black in a room temperature bath.

<http://www.flickr.com/photos/dhawktx/6031981141/>

Subject: Re: Dyeing Results

Posted by [electrobloom](#) on Mon, 29 Aug 2011 14:03:49 GMT

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Really good to see the amazing dyed finishes on WSF you've been able to achieve.
Interested to understand if Shapeways will be expanding their range of colours, any thoughts on what colours should always be available?

I'd really like a coffee brown, olive green and mustard yellow to be added to the red, indigo, grey and black. (loving that rust finish too dhawktx)

Mark

Subject: Re: Dyeing Results

Posted by [TomZ](#) on Mon, 29 Aug 2011 14:28:34 GMT

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You can leave WSF in boiling water without any problems. It's rated for only 80C or so but it will hold out just fine at higher temperatures.

Subject: Re: Dyeing Results

Posted by [dhawktx](#) on Mon, 29 Aug 2011 14:42:15 GMT

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Thanks for that! As fine as the wire is (.7mm) I was concerned! BTW, the silver acrylic over rust turned out awesome! Where the paint is too thin it gives the impression of slightly rusted maille.

Encore 1 by dhawktx1, on Flickr

Subject: Re: Dyeing Results

Posted by [rubyscooby](#) on Sat, 02 Nov 2013 22:15:09 GMT

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wow those dolls are amazing!
