
Subject: Polished WSF puzzle, dyed!!

Posted by [gibell](#) on Sat, 11 Jun 2011 16:47:03 GMT

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My Exploding Ball Puzzle has arrived in polished white, strong and flexible. I am very happy with this new material. With the old WSF, I found that I needed to sand the pieces in order to get the puzzle to work properly. In the polished WSF, it works perfectly.

This puzzle is made from 10 identical pieces which I have dyed in 5 different colors. This model includes a small icosahedron which fits nicely inside. The hollow version you see in polished SWF, and the translucent one was printed by a friend using an SD 300 printer. The icosahedron has also been sized so that one can use a standard Game Science D20 die. On the yellow pieces, you can see strange black marks which are caused by dyeing pieces that are hollow with trapped powder inside. This has happened to me before, but the good news is that in the past these dark areas have gone away after a month of drying.

It is hard to see in the photos, but the pieces are much smoother than standard WSF. It seems to me that some of the smoothness went away with the dying, they seem slightly rougher now. The dyeing process works well even with the polished material. It is hard to see in the photos, but the surface is almost shiny from some angles.

The wood version of this puzzle has a unique and fascinating property. If you spin it, it will spin for a second or more and then suddenly explode into pieces. The first time you see this it is quite a shock. This property is difficult to reproduce in the 3D printed versions of the puzzle. Even my sanded SWF versions always explode immediately upon spinning, or not at all.

I am happy to say that the polished WSF version of this puzzle is the first 3D printed version to explode properly like the wood versions. I am very happy with this new material, it has made this puzzle possible!

File Attachments

1) [IMG_1276_crop1.jpg](#), downloaded 1201 times

- 2) [IMG_1266_crop2.jpg](#), downloaded 1214 times
 - 3) [IMG_1268_crop1.jpg](#), downloaded 1197 times
 - 4) [IMG_1271_crop1.jpg](#), downloaded 1209 times
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Subject: Re: Polished WSF puzzle, dyed!!
Posted by [bdeaver](#) on Sat, 11 Jun 2011 17:31:23 GMT
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The colors look good. Are you using a RIT dye? I've gotten the impression that SWF doesn't absorb any type of dye. Is it the polishing that made the difference for you in terms of taking color? Thanks for any info.

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [gibell](#) on Sat, 11 Jun 2011 18:03:04 GMT
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bdeaver wrote on Sat, 11 June 2011 17:31The colors look good. Are you using a RIT dye? I've gotten the impression that SWF doesn't absorb any type of dye. Is it the polishing that made the difference for you in terms of taking color? Thanks for any info.

Yes, I use RIT dyes. I have dyed polished and normal White Strong and Flexible and both types accept dyeing readily. So many people have been asking me about dyeing that I wrote up a short document describing how I do it. Feel free to download it!

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [Nane](#) on Sat, 11 Jun 2011 19:56:57 GMT
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The dye job is excellent, it literally looks like a production puzzle toy with a nice textured type plastic. Great work and picture, the dye colors just really make the puzzle ball pop.

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [euphy](#) on Mon, 13 Jun 2011 09:39:33 GMT
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This is brilliant gibell, I love the idea of the polished WSF, but I was fairly sure that it'd make it

impossible to dye, since I was fairly clear that the dyes didn't really penetrate, I thought it was only the rough layer that took the colour. I am greatly encouraged by this post - and your puzzle looks excellent, really really impressive!

I guess this works because the polishing process is a burnishing process that rubs the rough material down, rather than necessarily shaving the rough surface off.

Out of interest, have you had any success with vivid, bright, acid type colours? I haven't. I'm using jacquard acid dyes.

Cheers!

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [jeff](#) on Tue, 14 Jun 2011 01:17:04 GMT
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THanks for sharing! Shapeways take notice, before any other materials are offered offering polished and dyed polyamide is my #1 material request. Please!

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [gibell](#) on Tue, 14 Jun 2011 13:23:20 GMT
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euphy wrote on Mon, 13 June 2011 09:39 This is brilliant gibell, I love the idea of the polished WSF, but I was fairly sure that it'd make it impossible to dye, since I was fairly clear that the dyes didn't really penetrate, I thought it was only the rough layer that took the colour. I am greatly encouraged by this post - and your puzzle looks excellent, really really impressive!

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Out of interest, have you had any success with vivid, bright, acid type colours? I haven't. I'm using jacquard acid dyes.

I haven't tried any acid type dyes. I'd be interested to see the results.

The original version of this puzzle had slightly undersized pieces so that they would fit together

without binding. However for this new material I removed this offset and it works great. I was counting on the polishing process removing a small fraction of a mm.

Thanks for the comments! I am really happy with this new material as well.

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [ana](#) on Tue, 14 Jun 2011 21:56:48 GMT
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@Jeff noted! Do you know of anyone else who's pining for this particular material development?

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [denali3ddesign](#) on Tue, 14 Jun 2011 22:53:07 GMT
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Nice job on the puzzle, gibell. Do you have a video of it on action?

ana wrote on Tue, 14 June 2011 21:56@Jeff noted! Do you know of anyone else who's pining for this particular material development?

Dyed polished WSF? I'd like it

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [gibell](#) on Wed, 15 Jun 2011 14:16:21 GMT
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denali3ddesign wrote on Tue, 14 June 2011 22:53Nice job on the puzzle, gibell. Do you have a video of it on action?

There are two old videos on the original model page

<http://www.shapeways.com/model/88885/>

This is the original 4cm version which exploded immediately upon spinning ...

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [Oskar_van_Deventer](#) on Fri, 17 Jun 2011 15:51:29 GMT
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euphy wrote on Mon, 13 June 2011 09:39 Out of interest, have you had any success with vivid, bright, acid type colours? I haven't. I'm using jacquard acid dyes. I always use Jacquard Acid Dyes and the colors are vivid and bright. Here are two tips, that I learned the hard way.

Always wash your model by boiling the pieces for five minutes in soapy water, and rinse them excessively. Otherwise, the color does not stick.

Do not forget to add the acid, e.g. white vinegar. Unlike what the name suggests, you have to add the acid yourself.

Oskar

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [ana](#) on Fri, 17 Jun 2011 16:54:13 GMT
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Hey gibell, I featured the Exploding Ball Puzzle in Friday Finds this week.

Congrats again on such a beautiful design.

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [gibell](#) on Fri, 17 Jun 2011 17:01:45 GMT
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ana wrote on Fri, 17 June 2011 16:54 Hey gibell, I featured the Exploding Ball Puzzle in Friday Finds this week.

Congrats again on such a beautiful design.

Thanks Ana!

The puzzle design is a result of several people, I'm just the person who turned it into a Shapeways model ...

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [red3dcom](#) on Sun, 07 Oct 2012 07:01:26 GMT
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Thanks so much for the tutorial. It is exactly what I was looking for. When you mentioned 3-5 minutes for Royal Blue makes it darker, did you mean it makes it darker like heading toward Navy Blue, or instead a more vibrant Royal Blue?

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [gibell](#) on Sun, 07 Oct 2012 14:38:52 GMT
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red3dcom wrote on Sun, 07 October 2012 07:01 Thanks so much for the tutorial. It is exactly what I was looking for. When you mentioned 3-5 minutes for Royal Blue makes it darker, did you mean it makes it darker like heading toward Navy Blue, or instead a more vibrant Royal Blue?

Darker as in heading towards black. So yes, Navy Blue.

-George

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [red3dcom](#) on Sun, 07 Oct 2012 16:24:26 GMT
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Good to know, thanks. I really like the shade of Royal Blue you achieved. Any chance you remember how long you left it in to get that?

Subject: Re: Polished WSF puzzle, dyed!!
Posted by [gibell](#) on Sun, 07 Oct 2012 17:00:46 GMT
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red3dcom wrote on Sun, 07 October 2012 16:24 Good to know, thanks. I really like the shade of Royal Blue you achieved. Any chance you remember how long you left it in to get that?

Approximately 5 minutes ... it seems to vary with dye concentration and temperature. I try to keep these the same but I'm sure they vary a little.

I have never had a problem with Royal Blue, but some of the other colors have been problematic lately. I now recommend the powder RIT dye over the liquid RIT. Some of the liquid colors I have had problems with (scarlet, also kelly green).
