Desiccant Box 190x60mm

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VIEW IN BROWSER

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Summary

This box hold about 150g of Silica Gel.

Hobby & Makers > Organizers

Tags: box desiccant

I had a need to control the moisture level in my 3D print filament. At first I was using ziplock bags and a central dry box that held three active filament reels. I've moved away from the central dry box approach and now use individual dry box filament boxes. The individual box approach means not having to regularly open up the dry box to swap reels, letting in fresh moist air in the process.

The individual dry box approach allows me to customise the degree to which I can maintain the individual reel moisture levels. My Nylon filament is kept at a level of less than 10% humidity whilst PETG is maintained at less than 20% humidity.

To control moisture at different levels means having different amounts of included desiccant in each filament dry box. So, to that end I have different size desiccant boxes to meet my varying desiccant amount needs. This is a third desiccant box I have shared. The other boxes are smaller and have an intended capacity of about 70-100g of Silica Gel.

Loose Silica Gel in a bag was potentially messy. So, I designed custom boxes to enclose the desiccant with lots of small holes for air circulation. This box tray size is 190 x 60mm and 20mm high (outside dimensions). This box hold about 150g of Silica Gel.

Over time, the Silica Gel will need refreshing and drying out. Follow manufacturer guidelines on the drying process.

The 3D printed box lid nicely friction fits onto the box. The risk of the box accidently being knocked open is low, but should it happen, that's a lot of desiccant pieces to get scattered, retrieve and clean up, so I place a rubber band around the filled box.

NOTES
- There are factors that need consideration should you choose to duplicate my results. These include the normal ambient air humidity level, the Silica Gel effectiveness and how well the Silica Gel has been dried out, to name a few. If unsure, the simple rule is more Silica Gel will dry remove more moisture from the surrounding air and will not damage the filament.

This approach to keeping filament dry is effective for filament that is already dry. Desiccant alone will not remove moisture that has already been absorbed by the filament. A filament drying process not covered here is required.

There are alternatives to Silica Gel to remove moisture from the air that can be effective, too. These alternatives are more or less effective, relative to Silica Gel, hence the quantity placed in this box will need adjusting, accordingly.

Apart from the 3D printed parts, I use a small cut out of fibreglass flyscreen mesh. Something on hand, but also easily sourced from your hardware store. The mesh is secured in-place by super glue and sandwiched with a 3D ring to keep the mesh flat.

Here is my 3D design. My design may match your needs, too.

My print is made in PETG 1.75mm Aurarum red filament, with 0.2mm layer height and 15% infill on a PRUSA I3 MK3S printer.

I hope you can find this design useful, too.

Model files

box-bottom.stl

lid.stl

box-bottom-with-pads.stl

lid-ring.stl

ring-bottom.stl

lid-with-pads.stl

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