

Safety & Warnings

Warning: This kit contains materials that may be harmful if used incorrectly. Please read all instructions before beginning. Failure to follow these instructions and warnings could result in serious consequences.

SAFETY

An MSDS for this product is available upon request by contacting giy@ecovatedesign.com.

Not for human or animal consumption.

Not to be used by children under age 10 except under adult supervision.

This kit contains small parts, including agricultural particles, which may be harmful if ingested or inhaled, or otherwise misused.

The GIY process requires the addition of flour, and may not be advisable for those with severe gluten allergies.

The material can be dusty when dry. Material may irritate airways if directly inhaled. In case of inhalation, remove the person to fresh air. If irritation persists, contact a physician.

Do not touch eyes while handling the material.

This material is not yet rated or recommended for structural applications.

STORAGE & DISPOSAL

Dehydrated material is shelf stable for up to 4 months in a cool, dry place.

Rehydrated material can be stored in the fridge for 2-3 weeks.

Excess raw material and finished Mushroom products are environmentally safe and can be safely disposed of in the trash, composting systems, or in gardens.

To compost the material, break it into 1 inch cubes and mix with soil or other composting materials. Given the right amount of moisture and soil organisms, the material will break down in a few months.

FUNGAL BIOLOGY

Common mold species may contaminate the material if the workspace is not sufficiently cleaned before use. Should mold growth occur, dispose of contaminated material immediately and clean work surfaces and materials with soap and water.

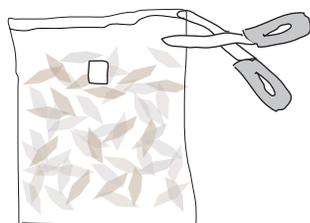
Gloves are recommended to protect the Mushroom Materials from competing organisms and to keep hands clean, but the material is safe if it comes in direct contact with skin. Do not touch eyes while handling the material.

The kit is not intended to produce mushrooms, but mushroom growth can occur if the growth of the material is not completely stopped during a final drying step. Mushrooms can produce aerial spores, which are a potential allergen for those sensitive to fungi or airborne particulates.

Reactivating Dry Material

MAKE TIME: 20 minutes

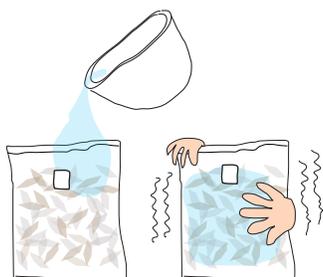
GROW TIME: 3-4 days



1 Open the bag of dry material by cutting the top off along the sealed line.



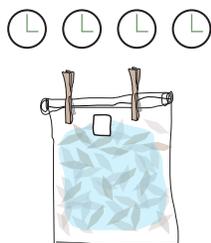
2 In a separate container, add 4 tablespoons (20g) of flour and 3 cups (700 ml) of tap water. Stir thoroughly for 1 minute.



3 Pour the flour and water mixture directly into the bag of dry mushroom material. Shake vigorously for 1 minute.



4 Fold the top of the bag over several times and secure shut with tape or a clip. (Do not fold over the white filter patch. This will prevent respiration.)



5 In a clean area (at room temperature and **not** in direct sunlight), allow the bag to grow out for 3-4 days.



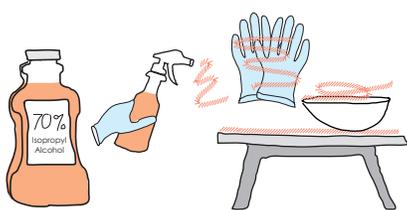
6 When the bag appears fully white, the material is ready to use! Refer to **Let's Grow Something** instructions. If you do not plan on using the material right away, place it in the refrigerator for up to 2 weeks.

You will need:

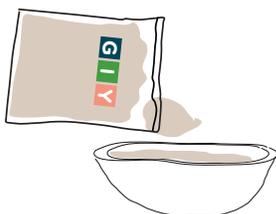


Let's Grow Something!

MAKE TIME: 1-2+ hours (depending on complexity of project)
GROW TIME: 5-6 days



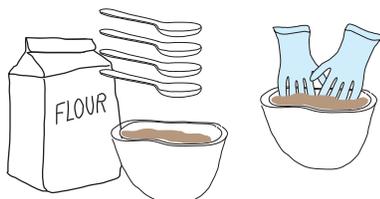
1 With gloves on, sanitize your gloves, working area, and mixing bowl with a small amount of rubbing alcohol. (Spray bottles work nicely.)



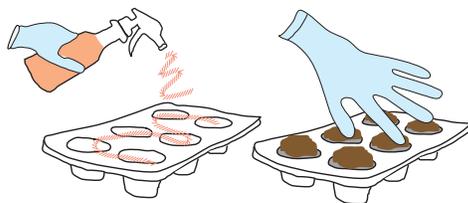
2 Remove mushroom material from bag and place in mixing bowl.



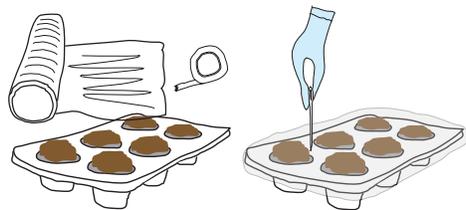
3 Break up material by hand until particles are loose. (Note: material will lose most of its white coloring during this stage.)



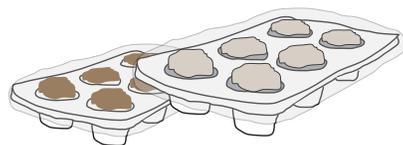
4 Add 4 tablespoons (20g) of flour and mix thoroughly for 1 minute.



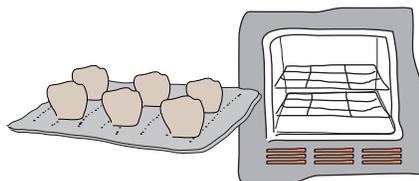
5 Sanitize your growing container/s with rubbing alcohol and allow to dry. Pack cavity/s with loose material.



6 Cover top surface of cavity with plastic wrap and secure with tape to keep material from drying out. Poke holes in wrap 1 inch (2.54 cm) apart with a sharp object to allow for respiration.

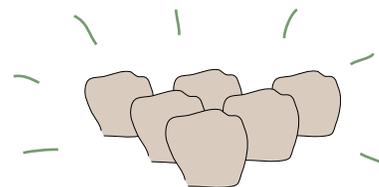


7 In a clean area (at room temperature and **not** in direct sunlight), let material grow until fully white again (about 5-6 days).

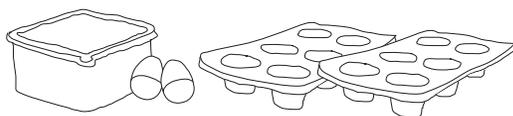


8 Carefully remove your project from its cavity. Weigh part/s and place on a baking sheet. Bake at 200° F (93° C). Parts are dry when they weigh about 35% of their original weight (check every half hour). This will prevent additional growth.

You will need:



9 Remove from oven and allow to cool. Your project is now complete!



“Tooling” Tips

A FEW WORDS OF ADVICE ON GROWING CONTAINERS...

Mushroom® Materials need **tooling** (a growing container) to grow into their final shape. Tooling also helps to lock in moisture, which is important for strong fungal growth. There are lots of options for tooling and we encourage you to explore and share your ideas with other GIY fans!

WHAT MAKES A GOOD TOOL?

- It's waterproof
- It's non-porous and smooth
- It gives you the desired feature resolution
- It can eject your part/s easily
- It can be reused (optional)

OPTIONS FOR TOOLING YOUR DESIGNS:

1. **Found tooling** - things like bowls, cake pans, sand castle toys, candy molds... whatever you can find!
2. **Custom tooling** - making small 'proof of concept' designs from carved or applied wax, or 3D printed designs, or small scale thermoforming (your local MakerSpace may have one)
3. **High volume tooling** - if you're making a lot of shapes, there are commercial thermoformers available to make larger quantities of tools (this is what we do at Ecovative)

OTHER TIPS & TRICKS:

1. Use draft angles of 3° and chamfered edges where possible
2. **No 'negative drafts' or 'undercuts'**
3. **Avoid features smaller than 1/4" wide or tall. Bold geometry and textures will be easier to fill with material and will be more visible when finished.**
4. Plastic wrap is a great liner for porous materials, and can help eject your part
5. Plastic wrap is also a good 'lid' to keep the moisture sealed in once you've filled the cavity
6. For more complex shapes, use multi-part tools
7. Skip the tool entirely and add a few tablespoons of a psyllium husk : water (1:4) mixture - it makes it behave like a chunky clay!

Materials that DO need a plastic coating

- wood
- clay
- plaster

Try using kitchen plastic wrap, painting on a silicone coating, or drip coating with hot wax.

Materials that DON'T need a plastic coating

- blue machinable wax
- molding silicone or epoxies
- PET plastic (recycled is best)

Try thermoforming, 3D printing, or injection molding for plastics. Wax can be carved out or painted into a final shape.