

Kineco.

mycelium materials

Guidelines

Hedelcomposite is an organic material consisting of residual sawdust and mycelium. Because fungus is sensitive to contamination, it is critical to work clean and sanitize your work environment. Here you will find guidelines to work with Hedelcomposite and grow your own mycelium materials.

Note!

Storage

Hedelcomposite should be stored in refrigerated conditions (1-4°C) when not used immediately. Use within 3 weeks.

Gear

Always wear sterile (nitrile) gloves and clean your workspace with disinfect spray when working with the material.

Perfect grow conditions:



Temperature
21 - 26C°



Relative Humidity
93 - 98%

CO₂

CO₂ level
1 - 3%



Moisture content
50 - 55%

Mycelium naturally produces carbon dioxide. With the right ambient temperature and moisture content, the substrate will regulate it's own environment. This will only succeed when the growing particle is sealed, so no CO₂ can escape. Additionally, the biomass present must be sufficient to generate enough CO₂ for that growth environment. Low CO₂ levels can produce weak objects.

Preperation



Choose your mold

Mycelium materials can be easily shaped into the desired part by using a reusable mold. The surface of your mold should be smooth and easy to clean. Slight flexibility of your mold will help pop the part out of the mold after the material completed the growing process.



Clean your tools

Avoid contamination by cleaning any surface that comes into contact with the substrate. We recommend using disinfectant >70%IPA. Avoid spraying the substrate with disinfectant as this will effect growth performance. Make sure all the disinfectant is evaporated before filling your mould with the substrate.



Check moisture level

The moisture content of the substrate should be between 50 and 55% to ensure proper growth. As we intentionally choose to not transport more water than needed, it is often essential to add some water (between 5 to 10% of the total mass) before processing the material. Be aware that the substrate should feel damp, but not soaked.

To precisely measure the moisture level of your material, take a 100g sample of the substrate. dry your sample using a microwave until all water is evaporated. measure the dry weight of the sample and subtract dryweight from wet weight (100g sample - DryWeight sample = moisture level in %). When your sample weighs more than 50g, it means you have to add water until the moisture level reaches between 50 and 55%.

Tip! to boost the mycelium growth, add between 5 and 8% (of the total mass) of regular flour from your local grocery store. The flour is used as nutrition by the mycelium and will boost the speed and performance of the growing process. Make sure to add flour to the substrate first and mix well before adding extra water.

Step by step process

1.

Fill your mold

Grind the substrate (if needed) and fill up your mold. Gently press down the substrate. When working on bigger objects it is best to gradually build up from layers. Don't press down too hard as the mycelium need some space (air) to grow.

2.

Seal your mold

Seal the opening of your mold with plastic and add enough pinholes for ventilation.

3.

The growing process

Keep the mold stored at 21 - 26C for 5 till 7days. Do not place your mold in direct sunlight. The mycelium starts to form a network of threads that binds the part together.

4.

Remove from mold and exterior growth

Carefully remove the object from your mold. It is recommended to execute an additional growing process of 1 or 2 days outside the mold to achieve exterior growth (whiter finish and extra strength). Once again it is important to seal the mycelium object for it to maintain it's own micro-environment and no CO2 can escape. You can use reusable plastic coverage to seal the object, but be sure to leave open space around your casted mycelium object as it need space and air to grow the outer 'skin'. Monitor your object daily to ensure the growth is stopped at a proper time.

5.

Dry product

The drying process is determined by the volume of the casted object and the temperature that is used to dry. Therefore, drying times may vary from 1 hour to 1 or 2 weeks. The mycelium material is considered dry when moisture readings of the dried object register 13% moisture content or less. Generally, brick-sized objects will dry within 1 or 2 hours at 80C°. Larger objects will take more time to dry. Use a moisture indicator to monitor the moisture level daily. Flip your object periodically, as bending may occur when drying on higher temperatures. When your object is dry, it has lost approximately 50% of it's weight.