

RECIPE 01 - OAK, APPLE SAWDUST, SEAWEED & BLUE OYSTER

I decided to base my experimental enquiry on the bonding capabilities of Mycelium with Seaweed sourced from my hometown of Swansea, and its ability to form material which can be used within domestic and the packaging/ insulation industry. Our early results were highly promising and a successful recipe and process example can be found on the recipe sheet attached.

MYCELIUM AS INSULATION

We in the UK are facing a house insulation crisis. Criticism of the governments current Great British insulation scheme which aim to insulate 300,000 homes a year over the next three years, have raised concerns on the plans ability to reach the 19m Homes that need better insulation. With the UK having one of the oldest and least efficient housing stock in Europe and cold, damp homes proving to be a real health risk to the UK population and contributing to strain on the national health service. Not to even mention the severely inflated costs of the energy market we must find a more effective and environmentally conscious ways of targeting these issues with potential solutions. Mycelium bonded material has the real potential to providing innovative and more environmentally sustainable solution to home insulation.

Unlike current, standard foam insulation which is made using harmful chemicals which are toxic to people and the environment. Mycelium bonded biosubstrate material is completely biodegradable, environmentally friendly and actually outperforms the standard products used in the market today. Mycelium acts as a natural binding adhesive, binding substrates together together and is extremely tenacious making it difficult to break. Its environmental friendly nature and water resistant make it a ideal solution material for home insulation.

BENEFICIAL PROPERTIES

- Biodegradable and compostable at end of life
- Fire, mold and water resistant
- Carbon Negative
- Non-toxic and can be produced from readily available materials and agricultural byproducts

HOME INSULATION KIT

Recipe Sheet

This recipe has and can be adapted for larger volumes. The quantity makes 1m² sheet of material.

Note

Inoculation time will vary with scale and quantities.

Apparatus -

A large tray container, Isopropyl alcohol, nitrile gloves, Digital scales, Autoclaving machine, incubator, oven, Kitchen foil, Baking tray, industrial blender.

TOP TIPS

Use washed up Seaweed so that you are not disturbing any living biodiversity in the area. You **Must** completely dehydrate and blitz the seaweed into a fine powder. Any moisture will affect the growing and could cause the mixture to go mouldy. Oak & Apple Sawdust can be substituted for Beech or Barley straw- all worked well in other experiments

INSTRUCTIONS

1. Dehydrate the Sourced Seaweed on a foil lined baking tray until crispy and all moisture is removed
2. Blitz the dried Seaweed using the blender into a fine powder.
3. Weigh out your raw substrates in the required quantity using a digital scale in an autoclaving bag
4. Agitate (mix) the substrate mixture to ensure it is well mixed and combined
3. Sterilise your bag of substrate through Autoclaving and allow the mixture to cool
4. Add the Blue Oyster culture into the sterilised substrate and mix well to encourage inoculation
5. Transfer the mixture into your container/ mould and compact by hand to ensure strength in bonding
6. Incubate the mixture in an incubator at 26-27°C for 2-3 weeks monitoring its growth
7. Allow to fully colonise over 2 weeks
8. Deactivate at 150°C for 30 - 45 minutes

What you will need:

- BIOsubstrates -
- 375g Oak Sawdust
- 250g Apple Sawdust
- 375g Seaweed Powder* (*dehydrated & blended)
- 2L Distilled Water
- Blue Oyster Liquid Culture