

MAKERS MANUAL #53

Lou Gouaille



BIO OF THE DESIGNER

Lou Gouaille is a French designer. Working with materials is her passion. She is very interested in fabrication processes and the magic of the material's transformation. In her work, she focuses on material research and experimentations. Since 2021 she has worked on "Ashes to Ashes" which aims to value the use of ashes as a material.

FURTHER READING

- The Material of Invention (La Materia dell'invenzione. Materiali e progetto), Manzini Ezio
- De Visscher Émile, Manufactures Technophaniques, doctorat en Art et histoire de l'art, PSL Research University (French)
- Obliquite Magazine, published by De Visscher Émile
- 5 designers pour un monde durable, Genevieve Gallot, Cynthia Fleury-Perkins (French)
- 'Où est le beau', podcast by Hélène Aguillard (French)
- The work of Hors Studio
- The work of Tjeerd Veenhoven

LIST OF THINGS

MATERIALS

- Flour
- Sugar
- Water
- Ashes

TOOLS

- Sieve with a 0.5mm grid
- Non-stick pot
- Whisk
- Spatula
- Cooking pad
- Pair of gloves
- Silicone baking mat
- Mixing bowls
- 2 x plastic syringes with ~5mm dia. head
- 2 x thick wood pieces ~ 20x5cm
- 2 x clamps (one-hand system better than screw system)
- Drill
- Spray bottle of water

INTRODUCTION

There are different types of ashes. First, there is industrial ash produced by thermal plants - these are reused in construction materials or as fertiliser. Then, there is domestic ash, which comes from fireplaces, stoves, barbecues or organic waste from fires. This raw material is produced by people or restaurants and it's considered a waste material. This manual is an extract of the project "Ashes to Ashes" that aims to give back value to ash as a material. 'Extruded Grenue Volume' will teach you how to use this neglected material as a production tool. The presented recipe only uses natural ingredients and the result is easily biodegradable.

STEP 1

First, we need to build our extrusion system. To do this, use the drill to make two holes along one of the pieces of wood, about 10cm apart. The holes should be large enough to fit the syringe head in, but not too large that the reservoir part slips through.

STEP 2

Then prepare the quantity of ingredients you will need. The recipe is 5.3 units of sifted ash for 4.3 units of flour, 1 unit of sugar and 6.5 units of water. That is, to obtain 200g of dry grenue, which is a small, simple object, you will need 100g sifted ash, 81.1g flour, 18.9g sugar and 122.6g water.



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STEP 3

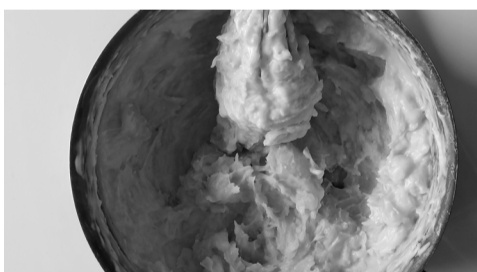
To sift the ash take the sieve and place it over a suitable bowl. Add a good amount of ash to the sieve then stir with a spatula until there are only large pieces of ash in the sieve, empty the sieve then repeat until there is enough sifted ash.



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STEP 4

Put the flour, sugar and water into the pot and mix cold, then stir vigorously over a medium heat until you have a thick paste. The paste should become difficult to mix and look like a mash.



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STEP 5

Remove the pot from the heat and start adding a little sifted ash to the pot, stirring with a whisk.

STEP 6

When the mixture becomes too thick, put your gloves on and take it out and knead it by hand while continuing to add ash. Be careful, the mixture may still be hot. Once all the ash has been added, the mixture should have the texture of play dough.



6

STEP 7

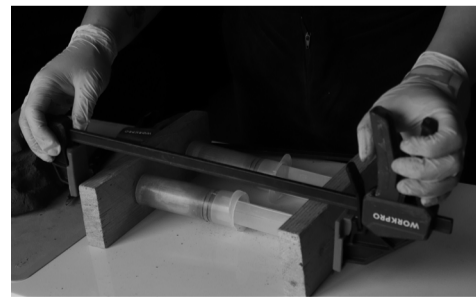
Once your mixture is ready, form coils to fill your syringes, don't forget to leave a few centimetres empty at the end. Once the syringes are filled, close them with the pistons.



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STEP 8

Take the piece of wood with the holes in it and place the heads of your syringes in the holes. Place the second piece of wood parallel to the first at the end of the pistons. Check that all the parts are aligned and tighten the syringe and wood pieces together using the clamps. Now start to extrude by gradually tightening the clamps. Go slowly and be careful to balance the left and right clamps so that the system does not twist.



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STEP 9

Extrusion is slow but you can combine the extrusion of the two syringes to go faster. Once the syringe is empty take the extrusion system apart, reload it and repeat.

STEP 10

You can now place your extruder on the silicone sheet and start the first layer of your object. You can choose to lay out the coils in

a specific pattern or in a straight line, this will affect its mechanical qualities. You can also use an external mould to create other types of shapes. To increase the strength of the final object, it is advisable to use 2 to 3 layers and not to overtighten or twist the coils.



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STEP 11

Between each layer, you can use a plastic sheet to gently press them flat and glue them together.

STEP 12

If the coil dries out too quickly, use the spray with water to soften them. It is also a good idea to spray between the layers of coils to glue them and improve the adhesion between the layers.



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STEP 13

Once you are satisfied with your volume, let the pieces dry for at least a week. During the drying process, do not forget to flip the piece regularly to ensure the drying is even and to avoid breakage.

Makers Manual is a collaborative project between exciting makers and STORE STORE. This is a collection of manuals encouraging people to make objects from what is around them. These manuals are both a practical guide to making for beginners and experts, and a journey into the designers' practice. You can share your creations using #makersmanual.

This project is supported by G.F Smith.

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