

HOW TO TURN WOODY WASTE INTO CHARCOAL BRIQUETTES

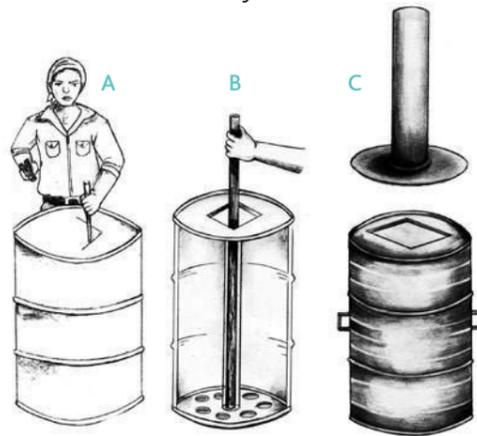
PREPARING YOUR EQUIPMENT

HOW TO PREPARE THE CARBONISING BARREL

Take a standard metal oil barrel and cut a large hole in the top (A). The hole needs to be large enough to allow you to comfortably fill the barrel with woody waste material.

Then cut some holes in the bottom of the barrel, about 6cm across (B). These holes will be used to poke material through and start the fire. You will also need a stick long enough to reach to the bottom of the barrel comfortably.

It is good practice to attach some handles to the sides of the barrel, and make a chimney that fits over the top (C). If you cannot make a chimney, use a flat metal lid that will cover the hole.



HOW TO MAKE A BRIQUETTE PRESS

There are lots of ways you can make a briquette press. This example produces square briquettes.

If you do not have welding equipment, you could ask a garage or workshop in your community to do this for you.

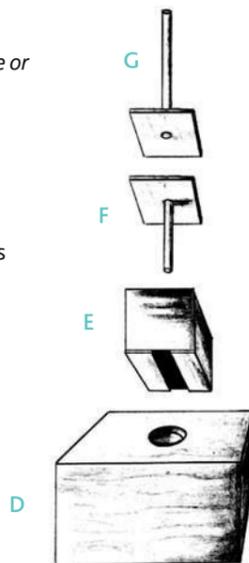
Drill a hole in the centre of a wooden block, large enough for a piece of metal bar (such as rebar) to fit in it (D).

Make the briquette mould by welding four plates together to make a square tube, and then welding two narrow plates onto an open end, with a channel down the centre wide enough for the rebar to fit through (E).

Weld one piece of rebar onto a plate to make the base (F).

Weld another piece of rebar onto a plate to make the plunger (G).

See step 7 (next page) for how to use a press.



MAKING YOUR BRIQUETTES

1 SORT

Choose material that is brown and dry. Remove all unwanted materials, especially plastics.

2 LIGHT

Poke dry leaves through the holes in the base, leaving some sticking out (this is easiest with the barrel lying on its side). Then place the barrel on three stones and fill it with the material. Use the stick to make sure the material is distributed evenly throughout the barrel. Set light to the leaves sticking out underneath, so that the fire burns through the material.

3 CARBONISE

The burning material will produce a lot of smoke. Using the stick, turn the material to make sure it is all carbonised. When the smoke reduces and flames come, wait a few minutes and then put the lid/chimney on the barrel. Remove the stones underneath and seal any air gaps around the bottom of the drum and the lid with sand or dirt (not necessary if using a chimney).

Leave for 5 to 10 minutes, then check. The material inside should be like small pieces of charcoal (char). If it is not yet carbonised, then leave it for longer. Do not leave it for too long or it will turn to ash. Different materials take different amounts of time – for example, coconut shells take 5 to 10 minutes to carbonise. You will need to practise a few times to get it right!

Be careful when you open the lid. Occasionally there will be flames leaping out, so you should keep your head and arms clear.



4 TIP OUT

With a person on each side, pick up the barrel (wearing gloves) and tip the charred contents into a metal wheelbarrow or heatproof container. Sprinkle it with water to stop it burning in the open air.



5 COOL AND CRUSH

When the carbonised material has cooled, crush it to powder. You can use a mortar and pestle, or crush it in your hands, or put it inside a sack and hit it with a stick.

6 MAKE YOUR BINDER

To bind the carbonised powder into a briquette, you will need to mix it with a binding agent. The best binder is starch. Simply boil a plant or material containing starch in a small amount of water until a thick, sticky paste forms, like porridge. Different types of starch include:

- cassava starch
- corn or maize starch or maize flour
- wheat starch or wheat flour, potato starch or rice flour

Other alternatives include gum Arabic or acacia gum. You can even use newspaper or mud from termite mounds mixed with water.

Mix the binder with the carbonised powder. Use enough binder to hold the mixture together, but not so much that your briquettes fall apart.

7 MOULD

Take your briquette press (see page 10). Place the metal base (F) into the mould (E) and rest the stick of the base inside the hole in the wooden block (D).

Push the briquette material inside the mould with your fingers.

Put the plunger (G) on top with the stick pointing up and hit with a hammer five times, taking care of your fingers. Remove the plunger. You will be able to see the briquette material compressed in the bottom of the mould.

Lift the mould out of the wooden block and rest the end of the rebar on top of the block. Push the mould down and the briquette will remain on top of the base. Remove the briquette and put in a dry place.

Depending on the climate, charcoal briquettes take one and a half to seven days to dry. Turn them so that they dry evenly.

8 MARKET

You can sell the charcoal briquettes in daily portions or in bigger sacks. You could give some away for free to potential buyers so people understand their benefits.

Adapted from Making waste work: a toolkit, by WasteAid. See Resources page for details.

Visit <https://www.youtube.com/watch?v=nLd-IJW1nXc> to watch a video of how to make charcoal briquettes.

