

Sampling woodchip from a stock pile or store

This method is based on the sampling standard BS EN ISO 18135 Solid biofuels – Sampling

The equipment needed to sample woodchip:

- Sampling scoop:- a 3 sided box with the following dimensions w 25cm x h 25cm x l 25cm (a snow shovel or a Farmer's no. 4 shovel are not perfect but will suffice).
- Heavy duty plastic/canvas sheet/tarpaulin on which to put the sample (at least 5metres x5metres)
- Rubble sack and gaffer tape or watertight plastic container

Precautions

Consider health and safety – use Personal Protective Equipment, observe manual handling procedures, and assess the site for hazards from machinery, dangerous or loose stock piles etc.

Taking a representative sample / sample preparation for delivery to the Laboratory

To make sure the sample is representative, random samples should be taken from around the pile/lorry/bag/sack. Where a sample is being taken following a dispute, please ensure all parties witness the sample collection.

1. From a barn/pile less than 100m² in area (stores that are up to 400m³). Estimate the number of tonnes of the whole heap (M) with a cubic metre of loose wood chip having an estimated weight of 200-250kg. The number of scoops (N) can then be calculated by:

$$N = 10 + (0.04 \times M)$$

Example: From a 15 tonne heap you should take at least 11 scoops. ($10.6 = 10 + (0.04 \times 15)$)

2. Take the scoops randomly around the heap. In your mind divide the heap into three layers and take samples from each with more samples from the lowest layers. Do not take any samples from the bottom 30cm layer.

If sampling for checking moisture with a Humimeter box, the instructions require a sample from a 1metre sampling depth.

If the stock pile is piled against the walls of the store in the storage bays, then you will need to adjust your sampling locations to be proportional to the amount in each layer (see figure 1). If the pile is stacked against the walls on three sides and the front edge is at 45 degrees then increase the number of samples from each layer by one. For example if 15 scoops are required, take 4 from the top layer, 5 from the middle and 6 from the bottom.

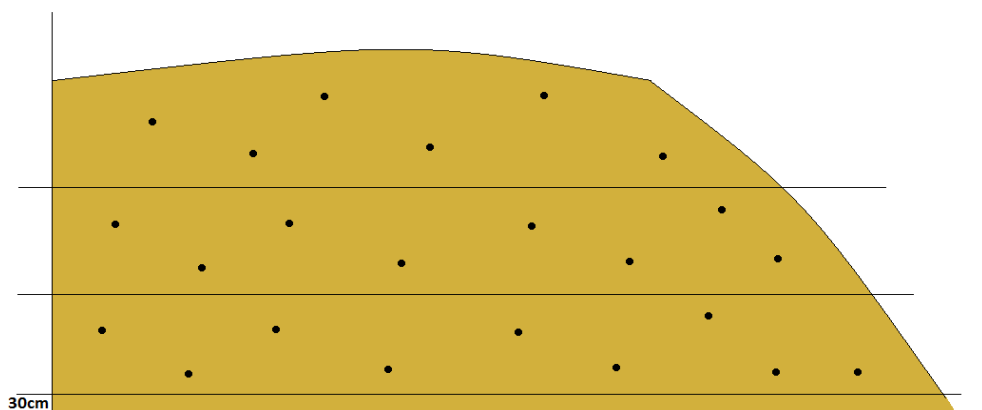


Figure 1: Sampling from a stock pile.

A 1 Taking a representative sample

3. Place each shovel-full on the plastic sheet, slowly pour it out onto one edge of the clean sheet / tarpaulin (about 1.5m in from the edge) so that each sample is poured directly on top of the existing pile, therefore the sample should spill evenly down the sides of the pile mixing it as you pour. This is known as a *conical pile* – see figure 2 below.

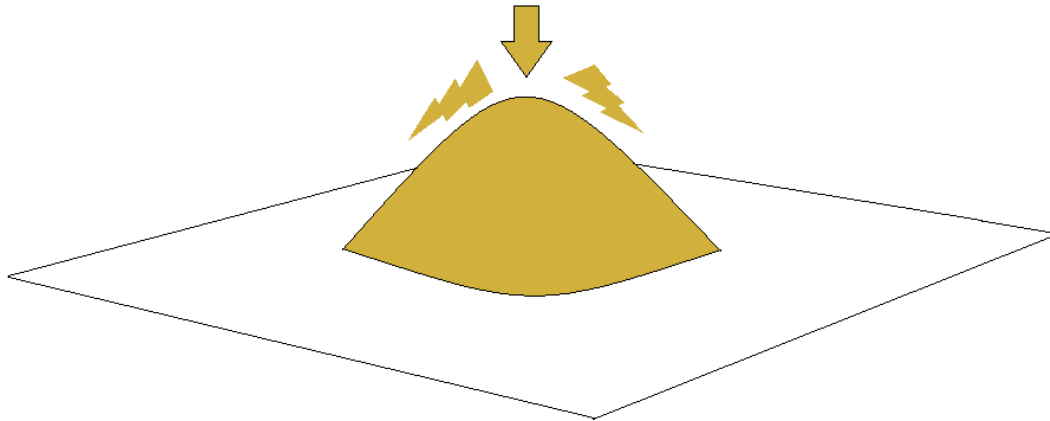


Figure 2: Conical pile

4. At the end of the sampling you should have a conical pile of chips. This needs to be thoroughly mixed and reduced to the final quantity you need, approx. 8 litres or 6kg, which is done by a method called *cone-and-quartering*.
 - i. Take a shovel and move the whole pile, one shovel-full at a time, to the other edge of the sheet. Again make sure each shovel-full is slowly poured onto the very top of the cone so that it spills evenly down the sides.
 - ii. Then repeat this once more so that you will have *coned* the sample a total of three times, thus thoroughly mixing it.
 - iii. Now the cone needs to be reduced down to the final size by *quartering* it. Flatten the cone by repeatedly pushing the shovel down vertically into the centre of the pile until it has flattened to the depth of the blade of the shovel.
 - iv. Using the shovel divide the flattened pile into quarters and slightly separate them outwards and discard 2 opposite quarters. See Figure 3

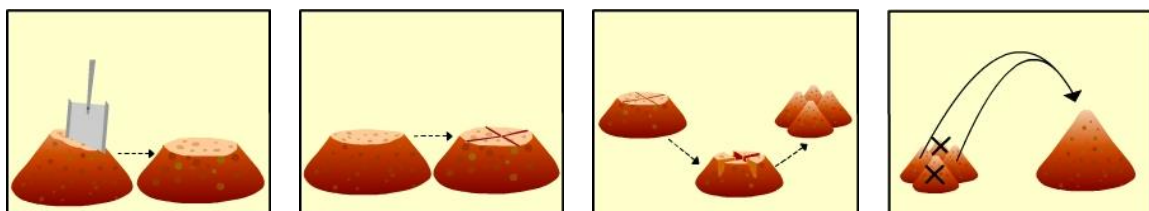


Figure 3: Coning and quartering -, discard two opposite piles.

- v. Cone and cut the sample as many times as required until the reduced sample is approximately 8 litres / 6kg. Place 2 equal sub samples inside two water tight containers or rubble sacks, sealed with gaffer tape. Label as per below. Leave one sample with the client for their reference and forward the second to the test laboratory. Samples should be stored in dry conditions out of direct sunlight.
- vi. Identify the sample by labelling the bags / containers with the following information, as appropriate:
 - Date
 - Company or depot that produced the fuel
 - Woodfuel size and moisture specification (for example P45A M30)
 - Site reading of moisture
 - Sample reference
 - Name of sampler

Labelling is very important as these samples may be sent by carrier to Woodsure for Quality Assurance testing.

Place the bag for any samples going to Woodsure into a cardboard box roughly 30cm x 40cm x 20cm and address to:

Woodsure Testing Centre,
Unit 40
Highfield Business Park
Deerhurst, Tewkesbury
GL19 4BP

5. Inform Woodsure by email (info@woodsurre.co.uk) or phone (01684 278188) that you have sent the sample for testing.
6. Once tested the results will be forwarded to the supplier. Where the results are positive, the sample(s) may be disposed of immediately. Samples that fail may be kept temporarily whilst results or corrective actions are considered with the supplier. The clients retained sample, or a separate sample may be requested for further testing.