

Biochar Buying Guide

This biochar buying guide helps you understand the key things to consider before buying biochar, and the key questions to ask so that you get quality biochar that is suitable for your needs

This guide is split into three sections:

1. Context,
2. Things to Consider Before Approaching a Supplier, and
3. Things to Ask Potential Suppliers
4. Extra questions for people who grow plants

Context

Am I after heat or reductant properties for industrial processes?

If your answer is yes, then you might be after charcoal, biocoal, biocarbon or carbon black. These are also carbon based materials, but are used up for heating or as a reductant for industrial processes.

What is biochar?

Biochar is made by converting biomass to biochar at high temperature with minimal oxygen. The best biochar results in a porous, carbon-rich, chemically stable biochar structure that gives good results with agriculture, construction and high tech applications. This biochar remains stable for long periods of time and is not 'used up' like other carbon based materials.

What is biochar used for most in New Zealand?

Most buyers in New Zealand use biochar to help things grow better. This buying guide is made for these people. If you would like more specific advice for other specialist applications, please contact us using the contact details on our website www.biochar.nz

Things to consider before speaking with a biochar supplier

What do I plan to use the biochar for?

Biochar has many beneficial properties which can be useful across many different applications, but not all biochars are created equal. It is important to get trustworthy advice about the benefits and risks of biochar for your specific context.

Tip: Letting your supplier know what you would like to achieve helps them give you the most suitable biochar, and advice for your specific application.

Is generic biochar suitable, or do I need a custom made product?

It's not just about the biochar, it's mostly about how you use it. With some good advice on use, generic biochar can be very useful for a wide range of applications.

With extra effort, biochar can be tailor made and used so you can get the most value from your purchase. This is useful where your animals or plants have specific needs that you would like to target.

Tip: consider whether you need a 'general purpose' product, or something targeted for a specific species

Things to ask potential suppliers

What is the biochar made from? Could any of the biomass sources have contaminated the biochar?

Having lots of contaminants in soil can be unsafe for plants, or the animals and people that eat those plants.

Things like heavy metals, plastics or other chemicals can contaminate char, so it is important to understand what your char is made from

Tip: it's best to avoid biochar made from treated timber, wastewater solids or things grown on contaminated land as these are more likely to have unsafe contaminants in them.

Was my biochar fully pyrolysed?

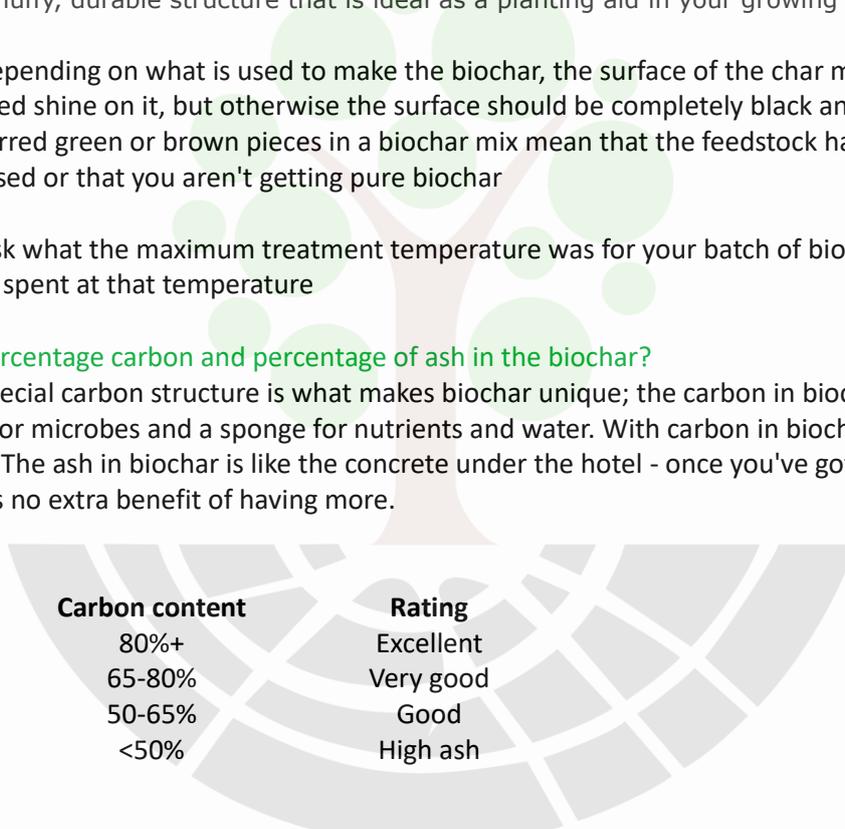
Making biochar is a bit like baking a cake. To be 'fully pyrolysed' means that the biomass is fully heated to temperatures over 350°C. At these temperatures the moisture, tars and pitch in the wood have completely evaporated, leaving a sponge-like structure. When the biochar is heated to temperatures from 500-600°C for a while, the biochar also puffs up for an extra-fluffy, durable structure that is ideal as a planting aid in your growing mix.

Tip: depending on what is used to make the biochar, the surface of the char may have a coloured shine on it, but otherwise the surface should be completely black and brittle. Uncharred green or brown pieces in a biochar mix mean that the feedstock hasn't been fully pyrolysed or that you aren't getting pure biochar

Tip: Ask what the maximum treatment temperature was for your batch of biochar, and how long it spent at that temperature

What is the percentage carbon and percentage of ash in the biochar?

The special carbon structure is what makes biochar unique; the carbon in biochar acts like a hotel for microbes and a sponge for nutrients and water. With carbon in biochar, more is more! The ash in biochar is like the concrete under the hotel - once you've got enough, there's no extra benefit of having more.



Carbon content	Rating
80%+	Excellent
65-80%	Very good
50-65%	Good
<50%	High ash

Tip: Don't pay for ash if you don't need it! Ask your supplier what the percentage carbon of your biochar is, and whether they can supply lab tests from your batch to show that. Pure ash is a gray or white colour because of the minerals in it, but the ash may not be obvious in your biochar mix because its surface is covered by other materials.

Do you sell biochar by volume or by weight?

Depending on a number of factors, the weight of a biochar mix can vary quite a lot for a given volume of biochar, so Char Bro Limited recommends buying biochar by volume, not weight.

Biochar also readily attracts and holds water - up to three times its own weight! The density of dry biochar can also vary significantly depending on how it is made.

Tip: Char Bro Limited recommends buying biochar by volume rather than by weight. This can be a better guide where biochar is to be mixed with other materials.

Is this biochar verified climate positive? How are you working towards this?

Calling an activity net climate positive means that doing the activity stores more carbon (as CO₂ equivalent) long term than the total greenhouse gases emitted from the activity (also as CO₂ equivalent), making a positive total climate impact.

Done well, biochar production can be net climate positive, holding carbon in its structure for centuries to millenia, while creating as few greenhouse gas emissions as possible during production.

Tip: The gold standard for measuring climate impact is by doing a complete lifecycle analysis. Ask your supplier what they are doing to make a more positive climate impact, and if their products have been verified as net climate positive through a lifecycle analysis.

Where was this biochar made?

Locally made biochar supports local people's livelihoods, helps encourage healthy local ecosystems and helps minimise greenhouse gas emissions from transportation of the biochar

Extra questions for people who grow plants

Has this biochar been 'charged'? If so, what with?

Biochar should ideally be 'charged' before use in plant growing media so that it doesn't compete with plants for nutrients. If it is not pre-charged, it will self-charge for up to 3 years. Biochar can be charged by adding soluble nutrients to a biochar mix and mixing to ensure that all surfaces are covered. This can be done by composting or in many other ways. Once it has been charged, biochar helps retain soluble nutrients and slowly release them when the plant is ready to receive them.

Tip: take along recent soil test results and recommendations, if you have them. Be sure to ask your supplier for advice on how to best to charge your biochar for your specific plants and situation before applying your biochar.

Has this biochar been inoculated? If so, what with?

Inoculating biochar aims to get beneficial soil life into their new biochar 'hotel' home. This is done to give your soil a head start. The combination of biochar and beneficial soil life will help make healthy nutrients available to your plants when they need them, giving your plantings a huge, organic boost.

Tip: Inoculating biochar is an optional, but highly recommended step.

Tip: There are specific soil organisms that work best with different types of plants. Talk with your supplier about how you can get your soil life working for you.

Now you know how to spot good char, do you want to know how it can benefit you?

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