

# eco-MERCH

The natural properties of bamboo make it the perfect fibre for both active and non active garments; from running, cycling, dancing apparel, to waiting and kitchen uniforms, to summer wear, to winter thermals, to casual wear, bamboo is possibly the most versatile fabric available and it grows naturally and abundantly.

## **The benefits of bamboo:**

Bamboo is the fastest growing and most sustainable plant in the world. It's a grass and not a tree and so the story goes you can actually watch some species grow (some grow up to 4 feet in a single day). It also regenerates itself and due to its fast spreading root network it both has a huge yield per plantation and can improve soil quality in degraded and eroded areas.

Bamboo has a natural defence against bacteria which has two major benefits; the first being that Bamboo does not require Pesticides (or fertilisers for that matter), it defends itself meaning that the ecosystem in and around plantations is much more diverse, food crops can be grown safely on the same land, and farmers do not need to buy expensive western chemicals to yield good profits. The second is that Bamboo, even after it is processed into fibre, retains its anti bacterial properties.

A study by the CTIT (Chinese Textile Industry Training Centre) introduced bacteria to a sample of bamboo fabric and recorded a 99.9% reduction in bacteria over 24hrs and a further test after 50 industrial washes showed a 70% reduction. The antibacterial properties in bamboo means that bamboo garments are extremely odour resistant as they kill the odour causing bacteria in human sweat.

Bamboo is significantly more absorbent than cotton meaning that sweat is 'wicked' away from the body quicker and evaporates quicker from the garment, meaning the wearer will stay dryer for longer.

The structure of bamboo when viewed under a microscope is smooth and rounded unlike most other textiles. This means it is anti-static and won't stick to the skin even when damp through sweat and it won't irritate your skin making it as perfect for physical activity as it is for lounging around the house.

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The structure of bamboo fibres also give a bamboo garment a soft almost silk like feel but without the difficulties when it comes to washing the garment. Most Bamboo garments can be wash at 30-40 degrees and tumble dried.

Bamboo plantations are large factories for photosynthesis which reduces greenhouse gases. Bamboo plants absorb about 5 times the amount of carbon dioxide (a primary greenhouse gas) and produces about 35% more oxygen than an equivalent stand of trees.

The downside to Bamboo:

Bamboo is not the perfect solution for sustainable fabrics. The process which refines the bamboo pulp and 'converts' it into its fibre-ready form requires a process called hydrolysis alkalization. The fabric is certified by Oeko-Tex as not harmful and the fabric manufacturers state that their product uses no harmful chemicals in either the hydrolysis alkalization or multiphase bleaching process however the process usually requires the use of Caustic Soda and other chemicals. The environmental implications of the processes and the health of the workers is dependant on the manufacturing facilities and the ethical and environmental credentials of the company. We do not know the exact process of the fibre production but the standard process is described here:

"While specifics can vary, the general process for chemically manufacturing bamboo fiber using hydrolysis alkalization with multi-phase bleaching technology – which is the dominate technology for producing regenerated bamboo fiber – goes like this:

1. Bamboo leaves and the soft, inner pith from the hard bamboo trunk are extracted and crushed;
2. The crushed bamboo cellulose is soaked in a solution of 15% to 20% sodium hydroxide at a temperature between 20 degrees C to 25 degrees C for one to three hours to form alkali cellulose;
3. The bamboo alkali cellulose is then pressed to remove any excess sodium hydroxide solution. The alkali cellulose is crashed by a grinder and left to dry for 24 hours;
4. Roughly a third as much carbon disulfide is added to the bamboo alkali cellulose to sulfurize the compound causing it to jell;

5. Any remaining carbon disulfide is removed by evaporation due to decompression and cellulose sodium xanthogenate is the result;

6. A diluted solution of sodium hydroxide is added to the cellulose sodium xanthogenate dissolving it to create a viscose solution consisting of about 5% sodium hydroxide and 7% to 15% bamboo fiber cellulose.

7. The viscose bamboo cellulose is forced through spinneret nozzles into a large container of a diluted sulfuric acid solution which hardens the viscose bamboo cellulose sodium xanthogenate and reconverts it to cellulose bamboo fiber threads which are spun into bamboo fiber yarns to be woven into reconstructed and regenerated bamboo fabric.

This gives some feel for how chemically intensive the hydrolysis-alkalization and multiphase bleaching manufacturing processes are for most bamboo fabrics that are promoted as being sustainable and eco-friendly.”

*Taken from an article by Michael Lackman*

NB/ The company we get our bamboo tees from openly displays this information on their website.

It is however important to consider that these chemicals when compared to the pesticides and defoliants used in conventional cotton are much safer on both the environment and arguably more importantly, the farmers.

All in all Bamboo is the most sustainable fabric in it's growing stage, when it comes to its processing it becomes a little less environmentally friendly. It is undoubtedly another step in the right direction, the fabric has more benefits than you can shake several sticks at and the material is still a young concept with a great wholly environmentally sustainable future ahead of it.

Whether Bamboo, Organic Cotton or Hemp, choosing these fabrics represents a better deal for the environment, the farmers, the textile workers and the end users, supporting companies who use and promote these fabrics is the most effective way for individuals and organisations to cause widespread positive industry changes.