

Official LCA & Carbon footprint

Life Cycle Assessment (LCA) is the commonly accepted methodology to systematically assess the environmental impact of a product or material over the full life cycle, thus from the extraction of resources until the end phase of demolition or recycling (from cradle till grave). The LCA methodology is internationally standardized in the ISO 14040 series, and measures the environmental impact in several categories, including depletion, air quality (dust, smog), toxicity and global warming potential (GWP). The environmental impact caused by a product can be caught under one number, for example expressed in eco-costs. Given the increasing attention with respect to global warming, the GWP of products is often assessed separately in a so-called carbon footprint. In this assessment all the greenhouse gas emissions during the life cycle of a product are measured in kg CO2 equivalent.

To gain a better understanding of the environmental impact of its products, MOSO has undertaken a long term strategic partnership with two leading research organizations in the field of LCA, carbon footprint and bamboo: Delft University of Technology (www.tudelft.nl) and the International Network for Bamboo and Rattan (www.inbar.int). This has resulted in several scientific publications* including an official Life Cycle Assessment (including carbon footprint) following the ISO 14040 and 14044 standard.

The official LCA shows that bamboo is an important CO2 'fixator'. This means that bamboo absorbs, during its growth and life until harvest, a relative large amount of CO2 from the air / atmosphere (and releases as subsequent large amount of O2 in return through the photosynthesis process). Since the area of permanent

MOSO bamboo plantations is growing steadily, an increasing amount of CO2 is permanently locked in the plantations plants. After the harvest this CO2 will remain locked in the material and will only be released when the material is discarded or burnt in the end of life phase, preferably in electrical power plants where it can substitute the use of carbon intensive fossil fuels and can thus be perceived as additional carbon credit following LCA methodology.

On the other hand, CO2 is released by machines and transport means which are needed to produce the bamboo products and bring them to the customer. For MOSO, it is very important to keep the emissions of greenhouse gases during this process as low as possible, by efficient production and using saw dust as energy source. By comparing the CO2 fixation and fossil fuel substitution in the End-of-life phase, with the emissions during production, transport and use, the CO2 balance of a product over the full life cycle can be determined. When the carbon credits through CO2 fixation and fossil fuel substitution are larger than the emissions, the product is CO2 neutral.

The LCA report concludes that all assessed MOSO products (all solid bamboo flooring, decking, panels and veneer) are CO2 neutral or better over the full life cycle. The report is available upon request.

The growing speed of renewable materials in terms of annual yield in cubic meters per hectare is not included in a carbon footprint and can therefore be perceived as an additional environmental credential for renewable materials in general and in particular for the most rapidly growing materials such as MOSO bamboo.

* References

- J.G. Vogtländer (2011). Life Cycle Assessment and Carbon Sequestration - Bamboo products of MOSO International. Delft University of Technology
- P. van der Lugt, J.G. Vogtländer, J.C. Brezet (2009). Bamboo, a Sustainable Solution for Western Europe; Design Cases, LCAs and Land-use. VSSD publishers, Delft, the Netherlands. ISBN: 978-90-6562-196-2; available a.o. through www.vssd.nl/hlf/m016.htm
- P. van der Lugt, J.G. Vogtländer, J.C. Brezet (2009). Bamboo, a Sustainable Solution for Western Europe INBAR Technical Report 30. INBAR, Beijing, China.
- J.G. Vogtländer, P. van der Lugt, J.C. Brezet (2010). The sustainability of bamboo products for local and Western European applications; LCAs and land use. Journal of Cleaner Production 18 (2010): pp 1260 1269.
- P. van der Lugt (2008). Design Intervention for Stimulating Bamboo Commercialization - Dutch Design meets Bamboo as a Replicable Model. PhD dissertation. Delft University of Technology & VSSD Publishers, Delft, the Netherlands. ISBN: 978-90-5155-047-4; available a.o. through www.vssd.nl/hlf/m015.htm

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For the LCA all 100% bamboo products of MOSO were assessed to be CO2 neutral, indicated in our product sheets by the CO2 neutral icon. Note that our engineered products, consisting of a non-bamboo carrier or backing (e.g. HDF for Topbamboo, latex for Unibamboo), were not yet assessed in the current LCA (work in progress).

IMPORTANT: MOSO is the only bamboo supplier worldwide to have executed a full LCA following ISO standards. The LCA was performed for the specific case of the MOSO production chain following best practice and can therefore not be perceived as being typical for the production chain of other industrial bamboo material manufacturers. Therefore, if other manufacturers claim the same, one should always ask them to back up their claim by asking for a full report following ISO 14040/44.

The MOSO logo is displayed vertically on the left side of the page. It consists of the word 'moso' in a bold, lowercase, sans-serif font, colored in a vibrant yellow-green. Above the 'o' in 'moso' is a small orange circle. Above the 'f' in 'Inf' is a white, stylized lowercase 'f'.