BIOFOLD

STUDIO SAMIRA BOON

“Our goal in crafting a healthy and functional workspace for bbn was to blend circularity with comfort. BioFold walls support this vision by incorporating recycled textile waste, creating an inviting atmosphere, and providing unique acoustic benefits.”

Odette Ex, Ex Interiors

Photo by Alexander van Berge

BioFold is a unique series of high-quality, bio-based acoustic elements. It is composed of locally produced natural fibers and textile waste streams, combined with bio-based plastics. The BioFold designs are based on origami structures and are parametrically developed and manufactured using digital production techniques. The three-dimensionality adds important qualities to the biocomposite, such as flexibility and acoustic and structural properties. The BioFold panels not only offer excellent acoustic performance but also give interiors a distinctive, organic appearance.

MATERIAL

BioFold Hemp

50% hemp
50% PLA

BioFold Viscose

50% recycled viscose
50% PLA

BioFold Denim

50% recycled denim
50% PLA

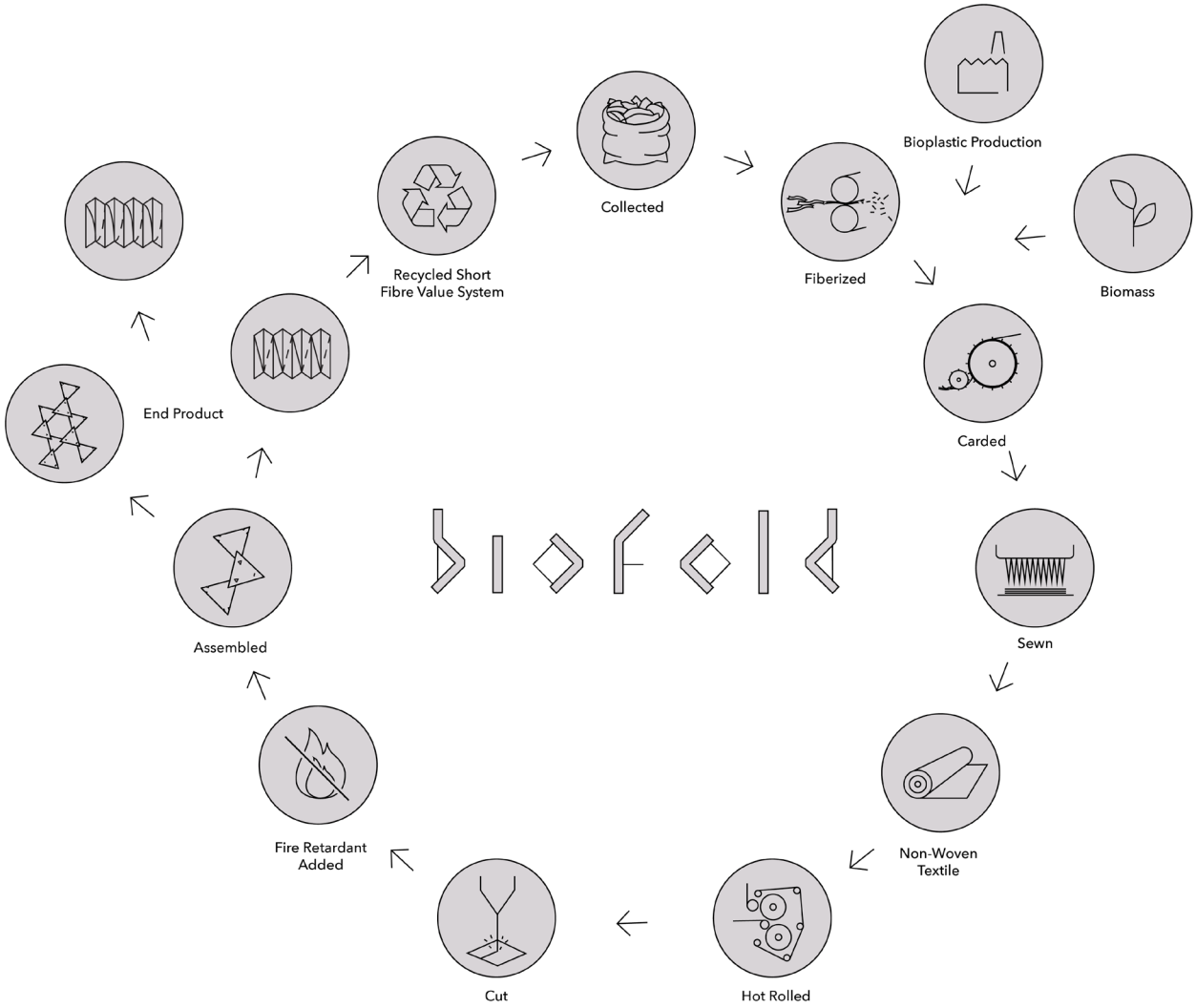
BioFold Wool - light warm grey

50% wool
50% PLA

BioFold consists of raw materials that are 100% biobased (jute, hemp, wool, PLA) and textile waste streams.

Fire retardancy
The BioFold can be treated with a fire-retardant coating.

Photo by Alexander van Berge


Bioplastic Production
Biomass
Fiberized
Carded
Sewn
Non-Woven Textile
Hot Rolled
Cut
Fire Retardant Added
Assembled
End Product
Recycled Short Fibre Value System
Collected
biofold

CIRCULARITY

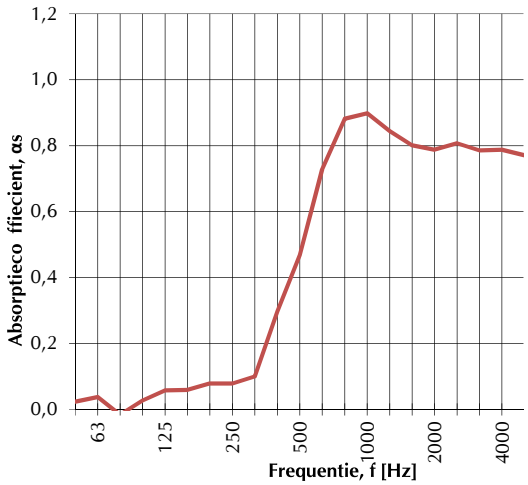
BioFold is developed with the mission to transform the abundance of natural fibers and wasted textile waste streams into high-quality interior products. BioFold utilises these non rewearable textiles that are otherwise difficult to recycle and combines them with a biobased plastic to create new biocomposite materials.

Using a circular process and digital production techniques, we transform the biocomposite into products with high quality, functional, sensorial and flexible architectural applications.

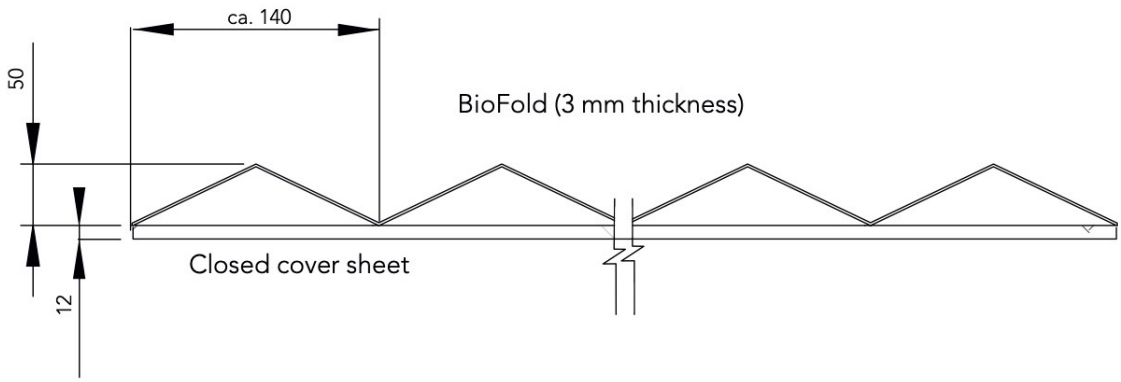
The Biofold product is biobased, waste based and recycleable. Most parts of the BioFold panels are removable and reusable and parts that are suitable for reuse are biodegradable and recyclable. Through multiple recycling cycles, the panels achieve not just a low environmental impact over their entire lifecycle, but even a negative environmental impact.

BIOFOLD BASIC

Acoustic absorption:	αw = 0.4
NRC:	0.55
Classification:	D
Maximum heigth:	3000 mm
Maximum width:	900 mm
Panel depth:	65 mm
Panel depth incl. French cleats:	75 mm
Weight:	35,24 kg/m³

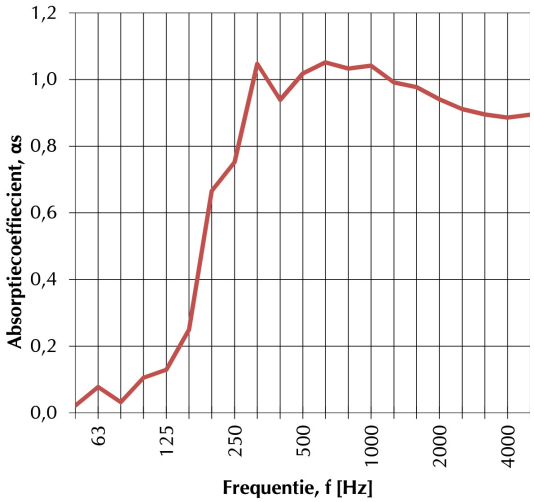


BioFold Basic (mm)



BIOFOLD ACOUSTIC

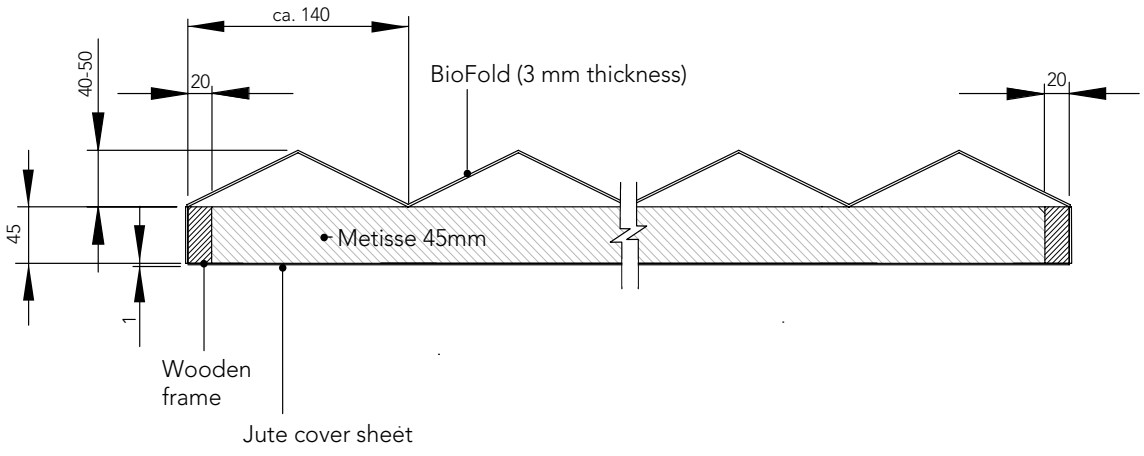
Acoustic absorption:	αw = 1.0
NRC:	0.95
Classification:	A
Maximum heigth:	3000 mm
Maximum width:	900 mm
Panel depth:	110 mm
Panel depth incl. French cleats:	120 mm
Weight:	80,58 kg/m³



Acoustic properties

The BioFold Acoustic has been optimised by adding absorption material made from textile residues. The combination has been tested for acoustic properties of ISO 11654 and ASTM C423.

BioFold Acoustic (mm)

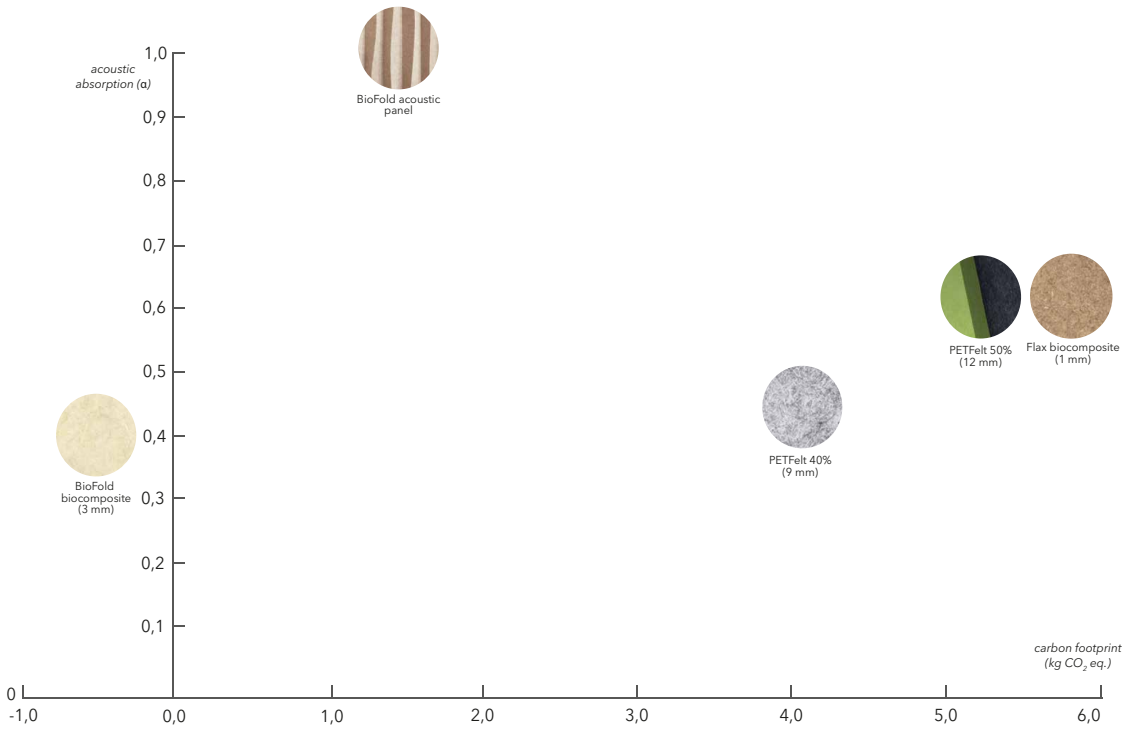


CARBON FOOTPRINT & ACOUSTIC PERFORMACE

The results of the Environmental Product Declaration (EPD) in compliance with EN 15804+A2 standards, show the environmental impact of the BioFold over its entire lifecycle.

The graph below shows the Carbon Footprint (kg CO_2 eq) of the BioFold biocomposite (2D) and BioFold acoustic element compared to other acoustic solutions.

BioFold biocomposite sheet 3 mm: -0,23 kg CO_2 eq
BioFold Acoustic Panel: 1,55 kg CO_2 eq



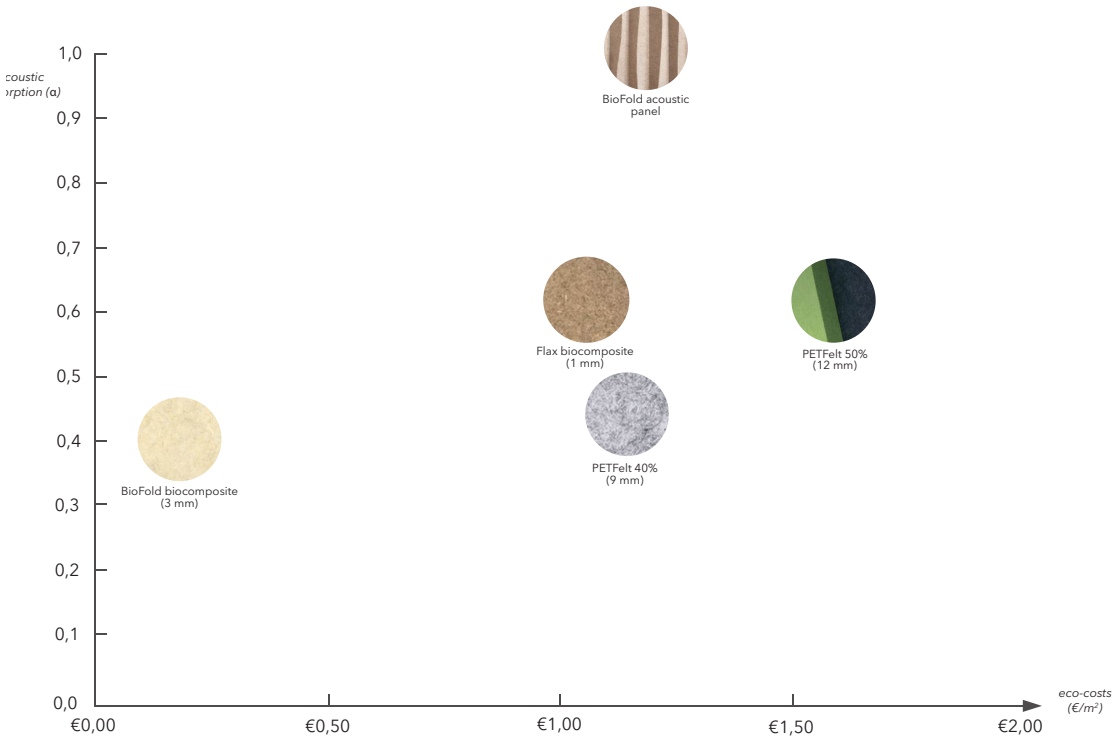
ECO-COST & ACOUSTIC PERFORMANCE

Eco-costs are hidden environmental costs that our society bears: the harm to nature, human health, and the depletion of natural resources.

Based upon the Environmental Product Declaration (EPD) the ecocost are estimated:

The graph below shows the ecocost (€/m2) of the BioFold biocomposite (2D) and BioFold acoustic element compared to other acoustic solutions.

BioFold biocomposite sheet 3 mm: 0,17 €/m2
BioFold Acoustic Panel: 1,20 €/m2



MAINTENANCE

The BioFold panels are easy to maintain and can be cleaned with a dry / slightly damp cloth, duster, or, if possible, a vacuum cleaner with a soft brush.

Since the BioFold material has a smooth surface and is a biocomposite rather than a soft textile, it does not gather much dust.

The frequency of needed maintenance depends on the location, however, our experience shows that within office spaces (meeting rooms as well as public areas), dusting the panels once a year should be sufficient.

INSTALLATION

The BioFold panels are delivered with French cleats for installation. One French cleat is attached to the panel and the other French cleat can be attached to the wall. The panels can be installed by yourself or by us in consultation.

Photo by Alexander van Berge

SAMPLES

You can order our scale model and material samples www.biofold.nl/store

In this sample combination set you will find:

1. BioFold Basic 3D 1:2.5 scale panel, 370 x 260 mm
    select your material / colour:
        Beige - locally sourced hemp
        White - recycled viscose
        Blue - recycled denim

2. All three material / colour samples of BioFold
    1. Locally sourced hemp 10 x 10 cm
    2. Recycled denim 10 x 10 cm
    3. Recycled viscose 10 x 10 cm

USER EXPERIENCE

"Circular design is at the heart of our new office and selecting materials that reflect this vision was essential for BBN. The biobased, waste-based, and recyclable BioFold walls play a significant role in achieving these goals."

Leon Batist, bbn

BIOFOLD

www.biofold.nl

Oostelijke Handelskade 12 D
1019 BM Amsterdam
The Netherlands