

Innovative woven geotextiles and geo fibres leading the sustainability path

Bet Breyne¹, Sophie Vandewalle¹, Sam Verbrugghe¹, and Simon De Meyer^{1}*

¹Beaulieu International Group, Waregem, Belgium

Abstract. The Beaulieu International Group has established a transparent way to communicate the environmental impact of their products. Via Environmental Product Declarations (EPDs), third party verified certifications and by following ISO 14025, the impact of the commercialized geotextile engineered solutions are calculated and presented to users. These show a clear advantage of using innovative products such as UltraForce staple fibers for non-woven geotextile fabrics or Beaulieu's woven technical fabrics, evidenced by a reduced global warming potential (GWP), dematerialisation and increased product longevity.

Beaulieu International Group, producer of woven geotextiles and main supplier of staple fibres for non-woven geotextiles used around the world, has the ambition to become carbon neutral by 2030 [1]. This goal requires a unique approach in each business unit and for each application.

Beaulieu communicates very transparently the environmental impact of their geotextile products. We do this via Environmental Product Declarations (EPDs), which are third party verified. By providing such services, customers get an overall view of the impact of a geotextile solution from the excavation of raw materials until the end of life (Cradle-to-Grave). EPDs on geosynthetics bring more transparency and help carbon-conscious purchasing and decision making. Registered EPDs are globally recognized, publicly available and free to download through EPD Libraries [2].

In the market, there is a strong focus on the reduction of the Global Warming Potential (GWP). Beaulieu has the advantage of being vertically integrated and produces its own polypropylene (PP) raw materials. Beaulieu's PP chemical plant has one of the lowest GWPs compared to other PP manufacturing plants. In combination with green electricity and energy reduction programs, Beaulieu's geo fibres and geotextiles excel having a low carbon footprint.

At Beaulieu, innovation sits at the forefront of the sustainability goals. In this vision, Beaulieu Fibres has developed the highest available tenacity PP fibre, UltraForce. This unique fibre has a very high tensile strength without compromising on elongation and hence can be seen as the most durable solution for non-woven geosynthetics.

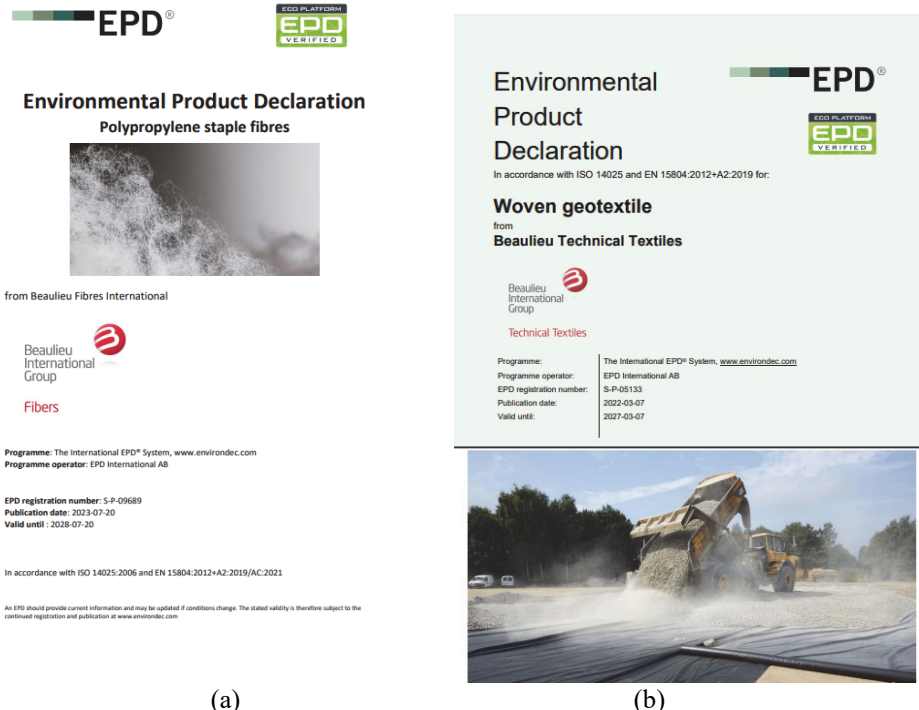
Other benefits of this fibre solution:

- Reducing material usage – low TCO
- Increasing tenacity, overall mechanical properties and excellent durability

* Corresponding author: simon.de.meyer@bintg.com

- Reducing non-woven weight

Next to this, woven geotextiles from Beaulieu Technical Textiles can reduce CO₂-emissions in infrastructure projects by a factor of 10 compared to more conventional methods. The carbon footprint of BTT's woven geotextiles is amongst the lowest in the industry, making them one of the most sustainable solutions for civil engineering projects.



(a) (b)
Figure 1: Environmental Product Declaration measuring the environment impact of Polypropylene staple fibres (a) and woven geotextiles (b) according to ISO 14025

References

1. Beaulieu International Group, Sustainability Report 2022, <https://www.bintg.com/news/report-2022>
2. Environdec, EPD library, <https://www.environdec.com/library/epd9689> and <https://www.environdec.com/library/epd5133>