

Environmental Product Declaration



In accordance with ISO 14025 and EN 15804+A1 for:

EcoCycle, recycled content PA6 yarns

from

Beaulieu Yarns

Beaulieu
International
Group





Yarns

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-02415
Publication date:	2021-01-08
Valid until:	2025-12-28

A graphic on a green background featuring a circular arrow (recycling symbol) filled with green leaves. In the center of the circle is a roll of green yarn. To the right of the graphic, the text "Circular solutions for a better future" is written in white, bold, sans-serif font.

**Circular solutions
for a better future**

Programme-related and verification information

	<p>EPD programme operator</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p>www.environdec.com info@environdec.com</p>
 <p>Yarns</p> <p>The EPD owner has the sole ownership, liability, and responsibility for this EPD.</p>	<p>EPD Owner</p> <p>Beaulieu Yarns Ideal Fibres & Fabrics Wielsbeke NV Ooigemstraat 2b, 8710 Wielsbeke – Belgium</p> <p>Tel +32 (0)56 66 81 91 info.ffw@bintg.com</p> <p>www.beaulieuyarns.com</p> <p>For more information on this EPD, please contact Pieter Demeyere Pieter.demeyere@bing.com</p>
	<p>Third party Verifier</p> <p>Dr.-Ing. Andreas Ciroth Kaiserdamm 13 14057 Berlin, Germany</p>
<p>Product category rules (PCR): PCR 2012:01 Construction products and construction services, Version 2.33 PCR 2012:01-Sub-PCR-B Synthetic carpet yarn, Version 2.31 CPC 264, 355 - Synthetic carpet yarn used for building purposes</p> <p>EPDs within the same product category but from different programmes may not be comparable.</p>	
<p>PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via info@environdec.com</p>	
<p>Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification</p>	
<p>Third party verifier: Dr.-Ing. Andreas Ciroth,</p> <p>Approved by: The International EPD® System</p>	
<p>Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	

Company information

Beaulieu Yarns

Beaulieu Yarns is a yarn specialist, providing high expertise and know-how in producing polyamide and polypropylene yarns addressing high demanding needs from the commercial contract market, the customized residential flooring and the automotive interiors. Customer focus, innovation and sustainability are the main drivers for collaborative product development and long-term relationships. The yarns offer high performance with remarkable color contrasts and designs. Most diversified yarns range from BCF to twisted and heat-set yarns, one-color to multi-color, between 650 and 15.000 dTex, applicable for any flooring construction. Beaulieu Yarns has two production sites in Europe – one in Belgium (site Berry Yarns), one in France (site Ideal Fibres & Fabrics Comines) – and one production site in China.

Sustainability Statement

Yarns division fully commits to integrate the UN Sustainable Development Goals into our business activities, by taking responsibility and bringing sustainable solutions into our core operations, creating value to our customers, and engaging employees and value chain partners. We fully pursue opportunities to support and solve the global environmental challenges through innovation, investment and collaboration.

Our impact on the Sustainable Development Goals (SDGs) has been mapped and action plans were defined to further progress in implementing goals into our organization. We continue along the path of corporate sustainability, define new challenging goals with specific actions, seek business opportunities with impact and encourage our network to continue and contribute to a better world.

Member of Beaulieu International Group

Beaulieu International Group (B.I.G.) is a global specialist in raw chemical materials (polymers), semi-finished engineered products (yarns, fibres, technical textiles and technical sheets) and is a leader in a broad range of floor coverings for the residential and commercial markets (vinyl rolls, vinyl planks, laminate, parquet, carpet, needle felt, artificial grass and mats) as well as upholstery fabrics. Headquartered in Belgium, B.I.G. employs nearly 5,000 people across 29 plants, 20 sales and distribution offices. It has a major presence in 17 countries all over Eurasia, the Americas and Oceania.

The company achieved a 2019 turnover of €2 billion and is serving customers in 140 countries. True to its roots as a family business, B.I.G. puts sustainability, innovation and care for its employees central.

Management system-related certifications:

- ISO9001:2015 certified via Bureau Veritas.
- ISO14001:2015 certified via Bureau Veritas.

Production site

Beaulieu Yarns

Ideal Fibres & Fabrics Wielsbeke NV, Site Berry Yarns

Route des Ecluses 52-54

7780 Comines - Belgium

Product information

Product name

- EqoCycle 75
- EqoCycle 50



Product identification

EqoCycle 75 and EqoCycle 50 are Bulk Continuous Filament (BCF) Polyamide 6 yarns. Polyamide 6 polymer for those yarns was manufactured by using pre-consumer recovered content. After BCF production EqoCycle 75 yarn contains 75% pre-consumer recovered material and EqoCycle 50 shall contain 50%. Those yarns are subsequently utilized as raw material for carpet and carpet tile production destined for contract, automotive and residential applications.



UN CPC Code

264, 355 - Synthetic carpet yarn used for building purposes.

Product specification

Technical data

Name	Value	UM
Type of manufacture	Bulk Continuous Filament (BCF), solution dyed	-
Material	Polyamide 6	-
Yarncount ¹	650 to 8400	dtex
Tenacity at break ²	1 - 3,5	cN/dtex
Elongation at break ²	25 - 75	%

¹ Internal test method

² Test method according to ISO 2062

Geographical scope

The products covered in this EPD are manufactured at the Site Berry Yarns in Belgium.

LCA information

Declared unit

1 kg EqoCycle 75 PA6 BCF yarn, packaged, with commercial weight add-on.
1 kg EqoCycle 50 PA6 BCF yarn, packaged, with commercial weight add-on.

Reference service life

RSL is not included in LCA / EPD.

Reference time period for data collection

All primary data of processes owned by Beaulieu International Group and its subsidiaries was collected in reference year 2019.

Background data and method used

Background data for all modelling purpose was retrieved from Gabi databases – service pack 40. Assessment method EN 15804+A1 is used for calculating impacts. LCA software GaBi ts – software version 10 was used to model the LCA.

Comparability

EPDs of construction products may not be comparable if they do not comply with EN 15804. A comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to EN 15804 and if the building context, respectively the product-specific characteristics of performance, are taken into account.

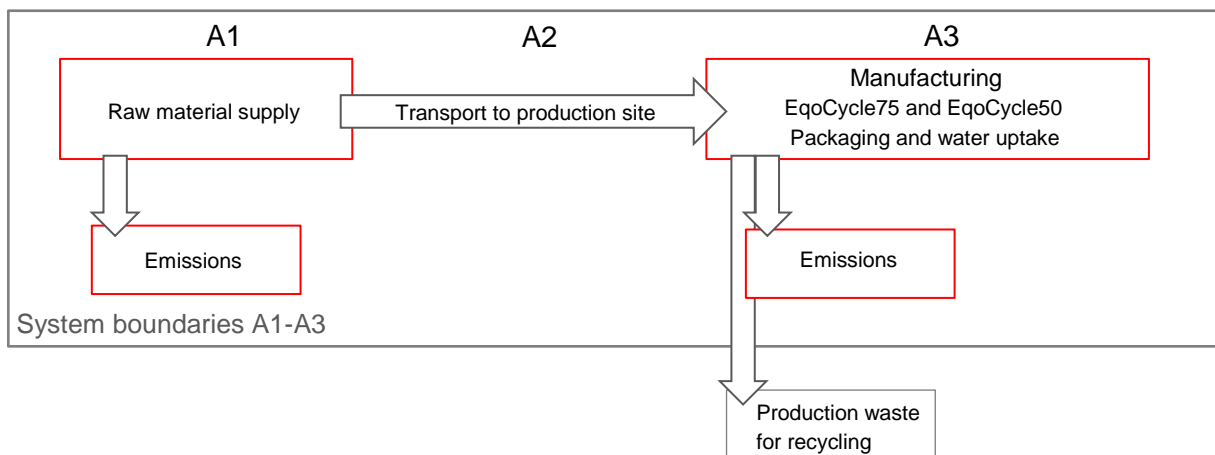
System boundaries

Type of EPD is cradle-to-gate , modules A1-A3 are reported as an aggregated number and include :

- Production processes of the raw materials (PA6 polymer, pigments, additive and ancillary materials).
- Transport of the raw materials to the manufacturing site.
- Energy supply and conversion of raw materials into packaged BCF yarn (incl. humidity).
- Emissions in all A1-A3 stages.
- Production and transport of packaging material to the production site.
- Water uptake.
- Production waste is going to be recycled and leaves the system boundaries without further processing.

Because the EqoCycle products are not part of a final building product, and hence not transported to a building site, module A4 is not declared.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)																	
PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE								END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw Material supply	Transport	Manufacturing	Transport from gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	X



Estimations and assumptions

For the spin finish and the amount of masterbatch and pigment in the yarn, an average is used. Since there is no LCA data available for most pigments, TiO₂ and carbon black were used as a substitute for inorganic and organic pigments. Since there is no LCA data available for spin finish, this LCI was modelled by combining LCI data of components of the product, using conservative assumptions. Due to unavailable LCI data for the water used, the alternative with the highest environmental impact was chosen. Data for mono- and masterbatch production is based on primary data from Beaulieu subsidiary and assumed to be valid for external suppliers as well.

For primary energy, overall plant data was recorded and divided over the total production of PA6 and PP yarn produced in the plant. It was assumed that the production of PA6 and PP yarn requires the same amount of energy.

Above assumptions and estimates were made because of limitations in the available databases as well as to simplify. All assumptions are believed to have only a small impact on the environmental data.

Cut-off criteria

As little cut-off as possible is used in the foreground system. Some emissions and wastes contributing very little to the total (<0,1%) may have been left out of the model (e.g. emissions due to cleaning of spin plates and spin blocks, certain wastes of scrap iron).

Taking into account the assumptions and cut-off described in the paragraphs above, it is assumed that the percentage of total environmental impact that might have been excluded does not exceed 1%.

Content declaration

Content declaration

Material type	Description	Weight%
Polymer	PA6 for EqoCycle 75 and EqoCycle 50	91,25 – 94,25
Pigments	Several	0-2
Spinfinish	Lubricant, antistatic	≤1
Water (humidity)	Commercial allowance according to BISFA	5,75

To the best of our knowledge, EqoCycle 75 and EqoCycle 50 yarns don't contain any materials or substances included in the Candidate List of Substances of Very High Concern (SVHC) for authorisation issued by the European Chemicals Agency. Under normal storage and use conditions, these yarns can be handled with no particular precautions or special protective equipment.

EqoCycle 75 and EqoCycle 50 yarns are produced on core tubes, packaged in distribution packaging on wooden pallets with cardboard to separate the layers, wrapped in PE film.

Environmental performance

Potential environmental impacts

Parameter	Unit	A1-A3 EqoCycle 75	A1-A3 EqoCycle 50
Global Warming Potential (GWP)	kg CO ₂ eq.	4,64E+00	5,86E+00
Ozone Depletion Potential (ODP)	kg R11 eq.	4,21E-09	4,21E-09
Acidification Potential (AP)	kg SO ₂ eq.	8,00E-03	1,06E-02
Eutrophication Potential (EP)	kg PO ₄ ³⁻ eq.	3,86E-02	3,88E-02
Photochem. Ozone Creation Potential (POCP)	kg C ₂ H ₄ eq.	1,22E-03	2,05E-03
Abiotic Depletion Potential non fossil (ADPE)	kg Sb eq.	1,37E-06	1,36E-06
Abiotic Depletion Potential fossil (ADPF)	MJ	6,00E+01	9,25E+01

Waste categories

Parameter	Unit	A1-A3 EqoCycle 75	A1-A3 EqoCycle 50
Hazardous waste disposed (HWD)	kg	1,03E-05	1,03E-05
Non-hazardous waste disposed (NHWD)	kg	1,22E-01	1,21E-01
Radioactive waste (RWD)	kg	1,06E-02	1,05E-02

Output flows

Parameter	Unit	A1-A3 EqoCycle 75	A1-A3 EqoCycle 50
Components for reuse	kg	0,00E+00	0,00E+00
Material for recycling	kg	1,16E-01	1,16E-01

Use of resources

Parameter	Unit	A1-A3 EqoCycle 75	A1-A3 EqoCycle 50
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ	9,61E+00	9,97E+00
Use of renewable primary energy resources used as raw materials	MJ	0,00E+00	0,00E+00
Total use of renewable primary energy resources; primary energy and primary energy used as raw materials	MJ	9,61E+00	9,97E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ	1,12E+02	1,41E+02
Use of non-renewable primary energy resources used as raw materials	MJ	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources; primary energy and primary energy used as raw materials	MJ	1,12E+02	1,41E+02
Use of secondary material	MJ	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ	3,25E-24	2,87E-24
Use of non-renewable secondary fuels	MJ	3,82E-23	3,37E-23
Use of net fresh water	m ³	1,43E-01	1,45E-01

References

The International EPD System	General Programme Instructions of the International EPD® - Version 3.01 PCR 2012:01 Construction products and construction services Version 2.33 PCR 2012:01-Sub-PCR-B Synthetic carpet yarn, Version 2.31
EN 15804	Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. EN 15804:2012+A1
NBN EN ISO 14044	Environmental management – Life cycle assessment – Re-quirements and guidance. Belgian Standard NBN EN ISO 14044:2006
NBN EN ISO 14025	Environmental labels and declarations – Type III environmental declarations – Principles and procedures (ISO 14025:2006). Belgian Standard NBN EN ISO 14025:2010-1.
BISFA	Terminology of man-made fibres – 2017 Edition (review of 2009)
ISO EN 2062	Textiles – Yarns from packages – Determination of single-end breaking force and elongation at break using constant rate of extension (CRE) tester. ISO 2062:2009(EN)
ISO 9001	Quality Management Systems. ISO 9001:2015
ISO 14001	Environmental management systems – requirements with guidance for use. ISO 14001:2015(EN)
LCA report	LCA background report for Polyamide 6 BCF and EqoCycle recycled content PA6 yarns.

