



SHI-PRODUKTPASS

Produkte finden - Gebäude zertifizieren

SHI-Produktpass-Nr.:

14498-10-1000

Bodencouture EcoPur

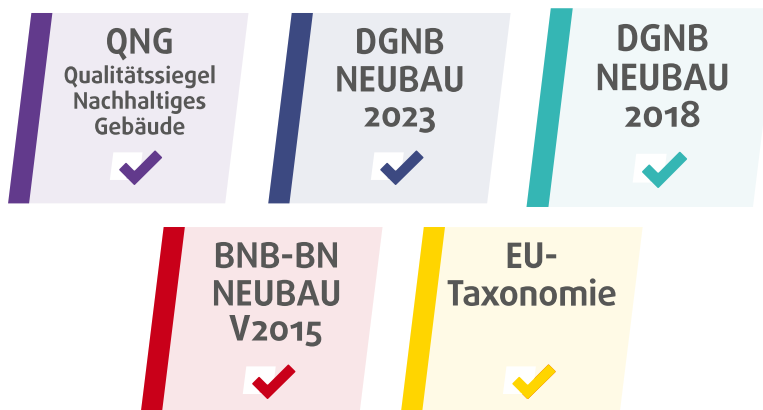
Warengruppe: elastische Bodenbeläge ohne PVC

BARTH & CO
MARKETERS SINCE 1873

F.W. Barth & Co. GmbH
Fuggerstraße 25
41352 Korschenbroich



Produktqualitäten:



Köttner

Helmut Köttner
Wissenschaftlicher Leiter
Freiburg, den 14.11.2025



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Wir sind stolz darauf, dass die SHI-Datenbank, die erste und einzige Datenbank für Bauprodukte ist, die ihre umfassenden Prozesse sowie die Aktualität regelmäßig von dem unabhängigen Prüfunternehmen SGS-TÜV Saar überprüfen lässt.





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QNG - Qualitätssiegel Nachhaltiges Gebäude

Das Qualitätssiegel Nachhaltiges Gebäude, entwickelt durch das Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen (BMWSB), legt Anforderungen an die ökologische, soziokulturelle und ökonomische Qualität von Gebäuden fest. Das Sentinel Holding Institut prüft Bauprodukte gemäß den QNG-Anforderungen für eine Zertifizierung und vergibt das QNG-ready Siegel. Das Einhalten des QNG-Standards ist Voraussetzung für den KfW-Förderkredit. Für bestimmte Produktgruppen hat das QNG derzeit keine spezifischen Anforderungen definiert. Diese Produkte sind als nicht bewertungsrelevant eingestuft, können jedoch in QNG-Projekten genutzt werden.

Kriterium	Pos. / Bauproduktgruppe	Betrachtete Stoffe	QNG Freigabe
3.1.3 Schadstoffvermeidung in Baumaterialien	2.2 Elastische Bodenbeläge – auch mehrschichtige Systeme	VOC / Emissionen / gefährliche Stoffe / Polyzyklische Aromatische Kohlenwasserstoffe (PAK) / SVHC / Schwermetalle	QNG-ready
Nachweis: Blauer Engel Zertifizierung			



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DGNB Neubau 2023

Das DGNB-System (Deutsche Gesellschaft für Nachhaltiges Bauen) bewertet die Nachhaltigkeit von Gebäuden verschiedener Art. Das System ist sowohl anwendbar für private und gewerbliche Großprojekte als auch für kleinere Wohngebäude. Die Version 2023 setzt hohe Standards für ökologische, ökonomische, soziokulturelle und funktionale Aspekte während des gesamten Lebenszyklus eines Gebäudes.

Kriterium	Bewertung
ECO 1.1 Gebäudebezogene Kosten im Lebenszyklus (*)	Kann Gesamtbewertung positiv beeinflussen
Nachweis: EPD	

Kriterium	Bewertung
ENV 1.1 Klimaschutz und Energie (*)	Kann Gesamtbewertung positiv beeinflussen
Nachweis: EPD	

Kriterium	Bewertung
SOC 1.3 Schallschutz und akustischer Komfort (*)	Kann Gesamtbewertung positiv beeinflussen
Nachweis: Datenblatt	

Kriterium	Bewertung
SOC 2.1 Barrierefreiheit (*)	Kann Gesamtbewertung positiv beeinflussen

Kriterium	Pos. / Relevante Bauteile / Bau-Materialien / Flächen	Betrachtete Stoffe / Aspekte	Qualitätsstufe
ENV 1.2 Risiken für die lokale Umwelt, 03.05.2024 (3. Auflage)	7 Bodenbeläge (Elastische Bodenbeläge)	VVOC, VOC, SVOC Emissionen und Gehalt an gefährlichen Stoffen	Qualitätsstufe: 4
Nachweis: Blauer Engel Zertifizierung			



Kriterium	Pos. / Relevante Bauteile / Bau-Materialien / Flächen	Betrachtete Stoffe / Aspekte	Qualitätsstufe
ENV 1.2 Risiken für die lokale Umwelt, 29.05.2025 (4. Auflage)	7 Bodenbeläge in der Innenanwendung (Elastische Bodenbeläge)	VVOC, VOC, SVOC Emissionen und Gehalt an gefährlichen Stoffen	Qualitätsstufe: 4
Nachweis: Blauer Engel Zertifizierung			



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DGNB Neubau 2018

Das DGNB-System (Deutsche Gesellschaft für Nachhaltiges Bauen) bewertet die Nachhaltigkeit von Gebäuden verschiedener Art. Das System ist sowohl anwendbar für private und gewerbliche Großprojekte als auch für kleinere Wohngebäude.

Kriterium	Pos. / Relevante Bauteile / Bau-Materialien / Flächen	Betrachtete Stoffe / Aspekte	Qualitätsstufe
ENV 1.2 Risiken für die lokale Umwelt	7 Bodenbeläge (Elastische Bodenbeläge)	VOC / SVOC / gefährliche Stoffe	Qualitätsstufe: 4
Nachweis: Blauer Engel Zertifizierung			



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BNB-BN Neubau V2015

Das Bewertungssystem Nachhaltiges Bauen ist ein Instrument zur Bewertung von Büro- und Verwaltungsgebäuden, Unterrichtsgebäuden, Laborgebäuden sowie Außenanlagen in Deutschland. Das BNB wurde vom damaligen Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (BMUB) entwickelt und unterliegt heute dem Bundesministerium für Wohnen, Stadtentwicklung und Bauwesen.

Kriterium	Pos. / Bauprodukttyp	Betrachtete Schadstoffgruppe	Qualitätsniveau
1.1.6 Risiken für die lokale Umwelt	2a Elastische Bodenbeläge – mit und ohne ankaschierte Verlege- oder Dämmunterlage	VOC / gefährliche Stoffe / Schwermetalle	Qualitätsniveau 5

Nachweis: Blauer Engel Zertifizierung



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EU-Taxonomie

Die EU-Taxonomie klassifiziert wirtschaftliche Aktivitäten und Produkte nach ihren Umweltauswirkungen. Auf der Produktebene gibt es gemäß der EU-Verordnung klare Anforderungen zu Formaldehyd und flüchtigen organischen Verbindungen (VOC). Die Sentinel Holding Institut GmbH kennzeichnet qualifizierte Produkte, die diesen Standard erfüllen.

Kriterium	Produkttyp	Betrachtete Stoffe	Bewertung
DNSH - Vermeidung und Verminderung der Umweltverschmutzung	Bodenbeläge (einschließlich zugehöriger Kleb- und Dichtstoffe)	Stoffe nach Anlage C, Formaldehyd, Karzinogene VOC Kategorie 1A/1B	EU-Taxonomie konform
Nachweis: Blauer Engel Zertifizierung			



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Produktsiegel

In der Baubranche spielt die Auswahl qualitativ hochwertiger Materialien eine zentrale Rolle für die Gesundheit in Gebäuden und deren Nachhaltigkeit. Produktlabels und Zertifikate bieten Orientierung, um diesen Anforderungen gerecht zu werden. Allerdings besitzt jedes Zertifikat und Label eigene Prüfkriterien, die genau betrachtet werden sollten, um sicherzustellen, dass sie den spezifischen Bedürfnissen eines Bauvorhabens entsprechen.



Der vom Umweltbundesamt als Zeichengeber und vom RAL e.V. als verantwortliche Prüforganisation verliehene „Blaue Engel“ ist eines der ältesten und in Deutschland das am häufigsten vorkommende Umweltzeichen. Den „Blauen Engel“ gibt es in zahlreichen Ausprägungen für die unterschiedlichsten Produktgruppen. Die zugrunde liegenden Prüfkriterien der jeweiligen Umweltzeichen (UZ) sollten in gesundheitlicher Hinsicht individuell betrachtet werden, da es durchaus Unterschiede in der Relevanz und Strenge gibt.



Das Eurofins-Label Indoor Air Comfort® bestätigt die Einhaltung von Vorgaben zu niedrigen VOC-Emissionen. Die Standard-Stufe deckt die gesetzlichen Anforderungen in der EU ab, während die Gold-Stufe zusätzlich Emissionskriterien freiwilliger Umweltzeichen und Gebäudezertifizierungen berücksichtigt.



Produkte mit dem QNG-ready Siegel des Sentinel Holding Instituts eignen sich für Projekte, für welche das Qualitätssiegel Nachhaltiges Gebäude (QNG) angestrebt wird. QNG-ready Produkte erfüllen die Anforderungen des QNG Anhangdokument 3.1.3 "Schadstoffvermeidung in Baumaterialien". Das KfW-Kreditprogramm Klimafreundlicher Neubau mit QNG kann eine höhere Fördersumme ermöglichen.



Das International EPD® System ist ein global anerkanntes Programm zur Erstellung und Veröffentlichung von Umweltproduktdeklarationen (EPDs). Es ermöglicht Unternehmen, die Umweltauswirkungen ihrer Produkte transparent darzustellen, basierend auf internationalen Normen wie ISO 14025 und der EN 15804 für Bauprodukte. Das System bietet eine standardisierte Methode zur Bewertung der ökologischen Performance von Produkten über ihren gesamten Lebenszyklus und fördert nachhaltiges Wirtschaften und ökologische Transparenz in verschiedenen Branchen.



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Rechtliche Hinweise

(*) Die Kriterien dieses Steckbriefs beziehen sich auf das gesamte Bauobjekt. Die Bewertung erfolgt auf der Ebene des Gebäudes. Im Rahmen einer sachgemäßen Planung und fachgerechten Installation können einzelne Produkte einen positiven Beitrag zum Gesamtergebnis der Bewertung leisten. Das Sentinel Holding Institut stützt sich einzig auf die Angaben des Herstellers.

Alle Kriterien finden Sie unter:

<https://www.sentinel-holding.eu/de/Themenwelten/Pr%C3%BCfverfahren/kriterien%20f%C3%BCr%20Produkte>

Wir sind stolz darauf, dass die SHI-Datenbank, die erste und einzige Datenbank für Bauprodukte ist, die ihre umfassenden Prozesse sowie die Aktualität regelmäßig von dem unabhängigen Prüfunternehmen SGS-TÜV Saar überprüfen lässt.



Herausgeber

Sentinel Holding Institut GmbH
Bötzingen Str. 38
79111 Freiburg im Breisgau
Tel.: +49 761 59048170
info@sentinel-holding.eu
www.sentinel-holding.eu

TECHN. DATEN

Prüfgegenstand	Norm	Testergebnis ecoPUR®
Dimensionsstabilität (%)	ISO 23999:2018	X-Richtung: 0,05 % Y-Richtung: 0,05 %
Krümmung (mm)	ISO 23999:2018	0,00 mm
Maßabweichung (mm)	ISO 24342:2018	Länge: Abweichung ≤ 0,13 % der Nennlänge bis zu maximal 0,5 mm Breite: Abweichung < 0,1 % bis maximal 0,5 mm – bestanden
Rechtwinkligkeit (mm)	ISO 24342:2018	0,1 mm – bestanden
Geradheit (mm)	ISO 24342:2018	0,05 mm – bestanden
Dickenabweichung (mm)	ISO 24342:2018	0,05 mm – bestanden
Verbleibende Eindrückung	ISO 24343-1:2007	0,13 mm – bestanden
Abnutzungswiderstand	EN13329	5300 R
Widerstandsfähigkeit gegen Kratzer	ISO 19322:2018 Anhang A	Kein sichtbarer, ununterbrochener Kratzer auf der Oberfläche unter 10 N
Stuhlrollen-Test	ISO 4918:2016 u. Amd.1:2018	Keine sichtbare Beschädigung (nach 25.000 Zyklen) – bestanden
Schälfestigkeit	ISO 24345:2006 (E)	X-Richtung: 65 N/mm – bestanden Y-Richtung: 70 N/mm – bestanden
Wirkung der simulierten Bewegung eines Möbelbeins	ISO 16581:2014	Keine sichtbare Beschädigung – bestanden
Farbechtheit gegenüber Licht	ISO 105-B02:2014	≥ 6
Rutschhemmung	EN 13893:2002 u. EN 14041:2018	0,41
Wärmeleitfähigkeit	EN 12664:2001	0,114 W/(m·K)
Wärmeleitwiderstand	EN 12664:2001	0,046 (m²·K)/W
Statischer Lastwiderstand	ASTM F3261-20 Abschnitt 8.7 u. ASTM F970-17 u. ASTM F387-17	0,11 mm – bestanden
Elektrischer Widerstand	EN 1081:2018 u. A1:2020 Methode A	> 1,0 x 10 ¹⁰ Ω
Bestimmung des Brennverhaltens mit einer Wärmestrahlungsquelle	ASTM E648-19a ⁶¹	Klasse II
Brandklassifizierung für das Brennverhalten von Bodenbelagsmaterial	EN 13501-1:2018 Klausel 9 & EN ISO 9239-1:2010 & EN ISO 11925-2:2020	C _{fl} -S1
Rauchdichte	ASTM E662-21a	Bestanden
Reach		Frei von SVHC-Substanzen ≥ 0,11 %
Rohs-Qualifizierung	Rohs	Bestanden
Formaldehyd	EN 717-1:2004	Bestanden
Pentachlorphenol (PCP)	EN 14041:2018 Anhang B & EN 12673:1999	ND (< 0,05 mg/g) – bestanden
Abfallschlüssel	17 02 03	Zu entsorgen in kleinen Mengen über die Wertstofftonne oder aber den Wertstoffhof
Verpackungseinheiten Dielen	Dielen	1 Pak. = 10 Pla. = 2,7816 m² 1 Pal. = 40 Pak. = 111,264 m² 20' Co. = 28 Pal. = 3,115,39 m²
Verpackungseinheiten Fliesen	Fliesen	1 Pak. = 6 Fl. = 2,6508 m² 1 Pal. = 51 Pak. = 135,1908 m² 20' Co. = 24 Pal. = 3,244,5792 m²
Format inkl. 1 mm Trittschalldämmung	Dielen Fliesen	5,2/0,3 x 228 x 1.220 mm 5,2/0,3 x 470 x 940 mm

PRODUKTAUFBAU

POLYMIN[®]
INSIDE

- Matecta[®] Premium-Oberfläche
- Transparente Nutzschicht
- Authentischer Dekorfilm
- Trägerplatte
- Integrierte Trittschalldämmung
- Patentiertes Klicksystem (L2C)



Eco friendly



Gelenkschonend



Geräusch reduzierend



Geruchsneutral

FORMAT

inklusive 1 mm Trittschall
5,2/0,3 x 225 x 1.220 mm
5,2/0,3 x 470 x 940 mm



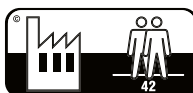
www.blauer-engel.de/uz120



Beanspruchungsklasse
Starke Beanspruchung
im privaten Bereich.



Beanspruchungsklasse
Starke Beanspruchung
im gewerblichen Bereich.



Beanspruchungsklasse
Normale Beanspruchung
in der Leichtindustrie.
Befahrbarkeit ausgenommen.



4-SEITIGE
MICROFAS

F.W.Barth & Co. GmbH
P.O. Box 2165 · 41352 Korschenbroich · Germany

SHI

Sentinel Holding Institut

Kontakt Markus Föhles
E-Mail mf@barth1873.de
Telefon +49 (0) 2161-995-535
Datum 01.01.2022
Thema **Herstellererklärung**

Sehr geehrter Damen Und Herren,

Herstellererklärungen zu AgBB-Schema und REACH Verordnung

Konformität AgBB-Bewertungsschema 2024

Hiermit bestätigen wir Ihnen, dass die von uns gelieferten Produkte der gesamten Barth Kollektion Bodencouture besonders emissionsarm sind und dem aktuellen AgBB-Standard (Ausschuss zur gesundheitlichen Bewertung von Bauprodukten) entsprechen.

VO (EG) Nr. 1907/2006 (REACH-Verordnung), Informationspflichten nach Art. 33

Hiermit teilen wir Ihnen mit, dass in dem/n folgenden von uns gelieferten Erzeugnis/Erzeugnissen, kein/e besonders besorgniserregenden/r Stoff/e (SVHC) der Kandidatenliste des aktuellen Stands über 0,1 % gemäß Art. 33 der REACH-Verordnung (Verordnung (EG) Nr. 1907/2006) enthalten ist/sind:

Gesamte Barth Kollektion Bodencouture

Die EU-Lieferanten von Erzeugnissen, die in unseren Produkten in relevanter Größenordnung verarbeitet werden, sind ebenso verpflichtet, uns unaufgefordert zu informieren, sofern in den von ihnen gelieferten Produkten ein SVHC-Stoff über 0,1 % enthalten ist. Sofern wir eine diesbezügliche Information von unseren Lieferanten erhalten und dadurch Kenntnis erlangen, dass damit auch in unseren Produkten die 0,1 Massenprozentschwelle für einen SVHC-Stoff überschritten wird, werden wir Sie informieren.

Von allen relevanten EU-Lieferanten lassen wir uns darüber hinaus noch einmal schriftlich versichern, dass keine SVHC-Stoffe > 0,1 % in den gelieferten Produkten enthalten sind.

Mit allen Nicht-EU-Lieferanten von Erzeugnissen, die in unseren Produkten in relevanter Größenordnung verarbeitet werden, treffen wir gesonderte Vereinbarungen. Darin lassen wir uns schriftlich versichern, dass wir unmittelbar informiert werden, sofern in einem an uns gelieferten Produkt die 0,1 Massenprozentschwelle für einen SVHC-Stoff überschritten wird.

Gleichzeitig bestätigen wir, dass die genannten Artikel der gesamten Barth Kollektion

Seite 2/2 zum Brief vom 03.11.2025

Bodencouture frei von Blei – Zink und Cadmium Stabilisatoren sind.

Mit freundlichen Grüßen

A handwritten signature in black ink, appearing to read 'Föhles', with a stylized flourish extending to the right.

Korschenbroich den 03.11.2025
Markus Föhles

Leiter Technik / Technical Director

Environmental Product Declaration



In accordance with EN 15804:2012+A2:2019 for:

Resilient flooring tile

from

Jiangsu BBL Home Technology Co., Ltd.



Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-11120
Publication date:	2023-10-23
Valid until:	2028-10-23

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR):
PCR 2019:14 Construction products, version 1.2.5

PCR review was conducted by: *IVL Swedish Environmental Research Institute*
Moderator: *Martin Erlandsson, Martin.erlandsson@ivl.se*

Life Cycle Assessment (LCA)

LCA accountability: *Zhou Jiangling, Xu Fangyan (Ecovane Environmental)*

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☒ EPD verification by individual verifier

Third-party verifier: Sunil Kumar, SIPL Pvt Ltd (sunil@sipl-sustainability.com)

Approved by: The International EPD® System

OR

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

☐ EPD verification by accredited certification body

Third-party verification: *<name, organisation>* is an approved certification body accountable for the third-party verification

The certification body is accredited by: *<name of accreditation body & accreditation number, where applicable>*

OR

Independent third-party verification of the declaration and data, according to ISO 14025:2006 via:

☐ EPD verification by EPD Process Certification*

Internal auditor: *<name, organisation>*

Third-party verification: *<name, organisation>* is an approved certification body accountable for third-party verification

Third-party verifier is accredited by: *<name of accreditation body & accreditation number, where applicable>*

*For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v.4, Section 7.5.

Procedure for follow-up of data during EPD validity involves third party verifier:

☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD:

Jiangsu BBL Home Technology Co., Ltd.

Address: NO.10 Changhong East Rd, Henglin Town, Wujin District, Changzhou City, JS213101, China.

Website: <https://www.bbllflooring.com>

Email: field@bbllfloor.com

Description of the organization:

Established in 1991, Jiangsu BBL home Technology Co., Ltd. (also known as BBL) is a professional manufacturer of Vinyl Flooring, Laminate Flooring as well as Engineered wood flooring. BBL has more than 31 years of experience in construction materials and has a good reputation in this field.

BBL have implemented a strict and complete quality control system, which ensures that each product can best meet customers' quality requirements. Besides, all the products have been strictly inspected before shipment. We have attained ISO9001:2008 certification for our management system and we are now using Lean Manufacturing System to improve our efficiency of internal management.

In 2010, BBL set up "Product Research and Developing Department". Jointly with Nanjing Forestry University, BBL has established "BBL Flooring Engineering Technology Research and Developing Center". BBL will insist on its business concept, which is "Following the market need, based on professional marketing, guaranteed by the creditable service" to build BBL as a professional brand and providing satisfactory products and service to clients all over the world.

Name and location of production site(s):

Jiangsu BBL Home Technology Co., Ltd.

Address: NO.10 Changhong East Rd, Henglin Town, Wujin District, Changzhou City, JS213101, China.

Product information

Product name:

BBL resilient flooring tile, including LVT (Luxury Vinyl Tile), LVT click (Luxury Vinyl Tile click), PP (Polypropylene), SPC (Stone Plastic Composite), EPC (Engineered Plastic Composite) and WPC (Wood Plastic Composite)

Product identification:

Table1 Product technical specifications

Product	Thickness	Length	width
LVT	2.0-4.0mm	200-2000mm	100-2000mm
LVT click	3.2-5.0mm	200-2000mm	100-2000mm
PP	3.2-6.5mm	200-2000mm	100-2000mm
SPC	3.2-7.0mm	200-2000mm	100-2000mm
EPC	5.0-7.0mm	200-2000mm	100-2000mm
WPC	5.0-12mm	200-2000mm	100-2000mm

Manufacturing process:

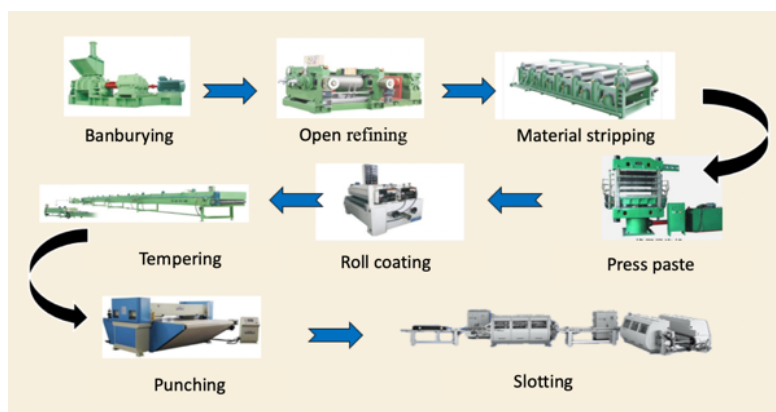


Figure1 BBL WPC resilient flooring tile manufacturing process

Product description:

BBL's resilient flooring series has a total of six series of products, including LVT (Luxury Vinyl Tile), LVT click (Luxury Vinyl Tile click), PP (Polypropylene), SPC (Stone Plastic Composite), EPC (Engineered Plastic Composite) and WPC (Wood Plastic Composite). The various series of flooring product shares the similar manufacturing processes and ingrediencies. According to the LCA analysis, WPC flooring product has the highest level of impact among the six series, hence in this EPD, WPC flooring tile, with various combinations of thickness, length and width of the tile, is selected as representative model. Among the WPC products, WPC with a thickness of 5.0 mm is the general specifications for each category, which can be abbreviated as WPC (5.0). A detailed flooring product specification is depicted below in Table 1 above.

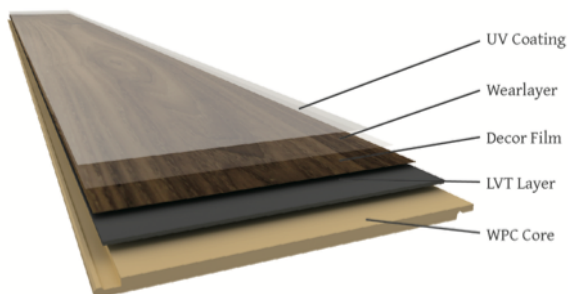


Figure 2 Structure of WPC floor

BBL's flooring tiles are 100% water proof, and they use best plasticizer DOTP and 100% virgin material, which have passed certification of Floorscore, Green Guard Gold and Eurofin's Indoor Air Quality Comfort.

UN CPC code:

36910 Floor coverings of plastics, in rolls or in the form of tiles; wall or ceiling coverings of plastics.

Geographical scope:

Global

LCA information

Declared unit:

The declared unit is 1 m² of WPC resilient flooring tile. To convert area to mass, multiply the volume by the density of the substance. The conversion factor of volume to mass in the LCA study is 1600kg/m³ since the thickness is 5 mm.

Time representativeness:

The study used primary data collected from January 2022 to January 2023.

Database(s) and LCA software used:

In this LCA study, specific data related to materials or energy flows within the production was calculated and submitted by BBL, generic data for certain processes were sourced from Ecoinvent 3.8 in SimaPro 9.5.

The data quality requirements for this study were as follows:

- Existing LCI data were, at most, 10 years old. Newly collected LCI data were current or up to 3 years old;
- The LCI data related to the geographical locations where the processes took place, e.g. electricity and transportation data from China, disposal data from Europe were utilized;
- The scenarios represented the average technologies at the time of data collection.

System diagram:

DESCRIPTION OF THR SYSTEM BOUNDARY (X = INCLUDED IN THE LCA; ND = MODULE NOT DECLARED)																
Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Recourse Recovery Stage
Raw Material	Transport	Manufacturing	Transport	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction and 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	X	X	ND	X	ND	ND	ND	ND	ND	X	X	X	X	X

Description of system boundaries:

This study of flooring product includes life cycle information from cradle-to-grave and module D. The product stage for product includes extraction and processing of raw materials, transportation to the factory and manufacturing processes with packaging and etc. The construction process stage includes transportation of flooring product to the building site from the factory and the installation phase. The use stage includes maintenance of flooring product. And the end of life stage includes deconstruction, transportation of waste products to final disposition site, disposal and etc.

Over through the life cycle stages of products, all energy and material inputs have been traced back to the extraction of resources, emissions from the whole system have been quantified and waste management scenarios have also been included.

For recycling and disposal process at the end of life stage, to be conservative, the benefits of recycling and recovery is out of boundary of the product system. However, the potential benefits from recycling and energy recovery beyond the system boundary of the studied product system have been declared and reported in module D in this study.

Excluded lifecycle stages:

The following steps/stages were not included in the system boundary due to the reason that the elements below are considered irrelevant or not within the boundary to the LCA study of the product system:

- production and disposal of the infrastructure and capital equipment (buildings, machines, transport media, roads, etc.) and their maintenance
- Storage phases and sales of the flooring products
- Flooring product losses due to abnormal damage such as natural disaster or fire accident. These losses would mostly be accidental.
- Handling operations at the distribution center and retail outlet (cut off, see 2.4 cut off rules)
- Secondary and transit packaging (cut off, see cut off rules)
- Transport from distribution warehouse to retail outlet and from retail outlet to consumer household or commercial center (cut off, see cut off rules)
- The excluded aspects were not included in the system boundary of LCA as the impacts from the excluded aspects were considered irrelevant to the flooring product system under examination, or the impact was deemed minor to the system under study, more of which will be elaborated in *cut off rules*.

Assumption and limitations:

For certain aspects of bamboo flooring studied, the following key assumptions were made as follows:

- For missing background data, substitution of missing data using similar background data approach was taken to shorten the gap.
- Transport assumptions were made where it was not possible to obtain the specific data, for instance from distribution center to outlet and from outlet to consumer. When this occurred, it was clearly stated in the report;
- Electricity consumption data was not obtained for certain processes so assumptions were made for these. When this occurred, it was clearly stated in the report;
- A modification of the global background database was done by replacing all the energy data, especially electricity production data, by Chinese energy data, and the study used the modified background data to get better indication of the potential environmental impact results by using more localized dataset of energy supply.

Allocation:

Allocation refers to partitioning of input or output flows of a process or a product system between the product systems under study and one or more other product systems. In this report, in plant recycling for substrate production is considered and assumed as a close loop, meaning all of the environment impact from recycling of substrate scraps, and flooring scraps from cutting and edging treatment and benefit of using recycled material to avoid waste treatment for substrate production are allocated to the process of flooring production.

For recycling and disposal process at the end of life stage, as described above, the benefits of recycling and recovery is out of boundary of the product system, and will not be allocated to flooring product.

For process-related allocations, a distinction is made between multi-input and multi-output processes.

- Multi-input processes

For data sets in this study, the allocation of the inputs from coupled processes is generally carried out via the mass. For literature data, the source is generally referred to. In this study one allocation occurs on BBL flooring production, in allocating the input and output, i.e. energy within the production site such as electricity, natural gas and etc. and some other raw material such as diesel, emission such as off gas among the various series of flooring products, allocation is done via both mass and size of the specific series of product produced on a yearly average. The principle for choosing the mass and size is based on the linear relationship of the product output to the environmental impacts.

- Multi-output processes

In this study, there is no other by products produced from the production line, hence there is quite little occasion that required allocation for multi-output processes. One allocation occurs on the environmental emissions allocation, especially in the area of waste treatment. In the end of life stage, the allocation within the disposal scenario follows mass allocation, which applies to waste treatment process inventory adopted from Ecoinvent data.

Cut-off rules:

It is estimated that the largest omitted mass flow in the product life cycle is associated with production stage, but it does not exceed 1% of total mass flow in the worst cases scenario. It is estimated that environmental relevance over impact categories during whole product life cycle does not exceed 1% in the worst cases scenario.

Cut-off criteria were applied to capital equipment production and maintenance. It was assumed that the impacts associated with these aspects were sufficiently small enough to fall below cut-off when it is scaled down to the declared unit.

Material and energy flows known to have the potential to cause significant emissions into air and water or soil related to the environmental indicators of this study will be included in the assessment. So far according to review of the Material Safety Data Sheet (MSDS) and relevant physical, chemical and other information of the flows listed in table above, no significant negative emission to the environment from above listed flows is identified.

Table 2 Cut off flows

Flow name	Process stage	Mass %	Total Mass %
Waste filter cotton	Production process waste gas treatment	8.5 E-05, <<1%	8.5 E-05, <<1%
Waste residue	Production process	7 E-05, <<1%	1.55 E-04, <<1%
Waste rag	Production process	1 E-04, <<1%	2.55 E-04, <<1%
Waste heat conducting oil	Production process	2.8 E-04, <<1%	5.35 E-04, <<1%

Electricity source:

In this report, the electricity is based on State Grid Corporation of China (SGCC) inventory, the inventory is prepared by Ecovane LCA consultant, taking into account the power plant efficiency, emission factor, power grid loss and also traced back to raw energy materials such as coal and natural gas.

The electricity inventory is based on the year of 2020 for Chinese electricity generation (China Energy Statistics). In 2020, the content of power supply is 68.5% thermal power, 17.4% hydropower, 4.7% nuclear power, and 6.0% wind power. And coal is the main fuel for thermal power, accounting for about 90%, followed by gas for 8%, and the rest is fuel oil and other fuels. The transmission of electricity in all cases is taken from the power station via a high voltage electricity grid to low voltage electricity suitable

for domestic use, with a loss factor of 7.52% of the electricity produced at the power station, and a loss of 6.15% by the electricity consumption at the power plants.

Life cycle assessment scenarios:

According to BBL, installation for flooring product is a relatively simple task and only a few tools like cutting instruments (knife, scissors) are necessary for installation. In this LCA study we assume the floor is flat and the energy or material required to do floor preparation is omitted. As tools are reusable, the production and disposal stage of tools is also omitted. Approximately 10% of the total material is cut off as waste, according to estimation by BBL. For the simplicity of the study, we assume that the scrape of the installation is treated following the normal end of life disposal scenarios used in the target market.

The disposal of packaging materials is also included in the installation stage. According to BBL, the target market of flooring products including North America, Europe and the Asian-Pacific region. The disposal of packaging materials will adopt a rough country and region weighted average disposal mode following literature review. For packaging disposal in North America, the waste disposal scenario from US is set default, and for packaging disposal in the Asian-Pacific region, the waste disposal scenario from Australia is set default, as US and Australia are the main markets in North America and the Asia Pacific region according to BBL. The table below demonstrates the packaging disposal in the target market.

Table 3 Packaging disposal in the target market

Nation/region		Ratio	Material type	Recycling Rate	Landfill Rate	Incineration Rate
EU ¹		30%	paper	81.50%	9.30%	9.20%
			wood	32.00%	39.00%	29%
			plastic	37.60%	23.80%	38.60%
North America	US ²	50%	paper	68.00%	26%	6.00%
	The rest market		wood	17.00%	67%	16.00%
			plastic	8.50%	76%	15.50%
the Asia Pacific region	Australia ³	20%	paper	55.00%	45%	0%
	The rest market		wood	80.00%	20%	0%
			plastic	13%	87%	0%

Source:

¹ Eurostat, Recovery and recycling rates for packaging. 2020. (Last updated March 2023)

² Advancing Sustainable Materials Management: 2018 Fact Sheet. (Released December 2020)

³ National Waste Report 2022. (Released December 2022)

Very little effort is required in order to use BBL flooring product, hence in the usage stage the focus is put on maintaining the floor tile in terms of protecting its integrity and functionality. In normal condition, routine vacuuming, cleaning and surface conditioning is required. The energy and detergent consumption data is based on estimation from BBL and study of average product's usage data, the table below demonstrates the amount used in this report.

Table 4 Inputs in maintenance stage

	Amount	Units	Scenario
Electricity	0.052	kWh/m2/yr.	Based on weekly vacuuming and 0.001kWh/m2 square assumption
Detergent	0.052	kg/m2/yr.	Based on weekly mopping and 0.001kg/m2 detergent usage assumption;

According to BBL, most of flooring products are used in Europe, North America, and the Asian-Pacific region. The disposal of the used flooring product will adopt a region average disposal mode following literature review. End of life disposal treatment process (C4) from ecoinvent will be used in this LCA study. For the waste scenario, 100km of road transportation (C2) from home to waste treatment site is assumed. According to BBL, the tile can be manually removed from the floor, hence input and output is omitted in deconstruction (C1), and waste processing (C3) stage of the tile life cycle. Table below shows the disposal in the target market.

Table 5 Disposal in the target market

Nation/region		Ratio	Recycling Rate	Landfill Rate	Incineration Rate
EU ¹		30%	49.2%	19%	30.2%
North America	US ²	50%	18.5%	65.5%	16%
	The rest market				
the Asia Pacific region	Australia ³	20%	80%	20%	0%
	The rest market				

Source:

¹ Eurostat, Recovery and recycling rates for packaging. 2020. (Last updated March 2023)

² Advancing Sustainable Materials Management: 2018 Fact Sheet. (Released December 2020)

³ National Waste Report 2022. (Released December 2022)

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	X	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	CN	CN	CN	GLO	GLO	ND	GLO	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	GLO
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	27.40%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	EPC (5.0)	LVT (2.5)	LVT click (4.2)	PP (4.2)	SPC (5.0)	WPC (5.0)
Stone powder	65.60%	70.10%	70.10%	64.50%	67.40%	62.30%
PVC	23.30%	16.30%	16.30%	-	20.50%	28.50%
Other additive	0.90%	-	-	2.00%	0.60%	0.90%
Wearlayer	8.30%	7.50%	7.50%	-	10.00%	5.10%
Wearlayer-PVC free	-	-	-	9.20%	-	-
Stabilizer	1.30%	1.30%	1.30%	0.00%	1.10%	0.20%
UV coating	0.20%	0.20%	0.20%	0.20%	0.20%	0.20%
Carbon black	0.20%	0.20%	0.20%	0.10%	0.10%	0.20%
Lubricant	0.30%	-	-	0.20%	0.50%	0.80%
Film	0.10%	0.20%	0.20%	-	0.10%	0.10%
Film-PVC free	-	-	-	0.20%	-	-
DOTP	-	9.20%	9.20%	-	-	2.00%
PP	-	-	-	23.60%	-	-
ixpe	-	-	-	-	-	0.50%

Packaging materials	Weight, kg/DU	Weight biogenic carbon, kg C/DU
Packaging box	0.146	0.051
Tray	0.095	0.047
Wrapping film	0.019	0
Packing belt	0.01	0

Results of the environmental performance indicator

BBL's resilient flooring series has a total of six series of products, including LVT (Luxury Vinyl Tile), LVT click (Luxury Vinyl Tile click), PP (Polypropylene), SPC (Stone Plastic Composite), EPC (Engineered

Plastic Composite) and WPC (Wood Plastic Composite), among which the environmental impact of WPC flooring is the largest. Therefore, the environmental impact value of WPC is selected as representative product for disclosure in this EPD report.

Mandatory impact category indicators according to EN 15804

Results per declared unit										
Impact category	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
GWP - total	kg CO ₂ eq	1.24E+01	2.48E+00	1.88E-01	4.19E+00	0.00E+00	1.02E+00	0.00E+00	1.39E+00	- 3.17E+00
GWP - fossil	kg CO ₂ eq	1.26E+01	2.48E+00	1.73E-02	3.53E+00	0.00E+00	1.02E+00	0.00E+00	1.03E+00	- 3.36E+00
GWP - biogenic	kg CO ₂ eq	-3.60E-01	4.79E-04	1.71E-01	- 3.34E+00	0.00E+00	3.14E-04	0.00E+00	3.60E-01	1.89E-01
GWP - luluc	kg CO ₂ eq	1.52E-01	1.54E-03	2.12E-06	4.00E+00	0.00E+00	1.12E-04	0.00E+00	1.17E-04	-3.17E-03
ODP	kg CFC11 eq	4.88E-06	5.21E-07	4.05E-10	4.34E-07	0.00E+00	2.22E-07	0.00E+00	1.84E-08	-1.36E-06
AP	mol H ⁺ eq	5.90E-02	5.75E-02	2.33E-05	3.64E-02	0.00E+00	6.46E-03	0.00E+00	1.15E-03	-1.54E-02
EP-freshwater	kg P eq	4.34E-03	1.15E-04	5.35E-07	2.40E-02	0.00E+00	1.83E-05	0.00E+00	1.20E-04	-1.22E-03
EP-marine	kg N eq	1.28E-02	1.41E-02	1.27E-04	3.38E-02	0.00E+00	2.60E-03	0.00E+00	6.93E-03	-2.99E-03
EP-terrestrial	mol N eq	1.22E-01	1.56E-01	7.97E-05	1.20E-01	0.00E+00	2.85E-02	0.00E+00	3.97E-03	-2.93E-02
POCP	kg NMVOC eq	3.70E-02	4.13E-02	4.24E-05	2.05E-02	0.00E+00	1.00E-02	0.00E+00	1.07E-03	-9.50E-03
ADP-minerals&metals*	kg Sb eq	1.25E-04	4.20E-06	7.40E-09	5.81E-05	0.00E+00	8.91E-07	0.00E+00	4.23E-07	-4.53E-05
ADP-fossil*	MJ	2.20E+02	3.42E+01	3.62E-02	3.92E+01	0.00E+00	1.39E+01	0.00E+00	1.74E+00	- 6.93E+01
WDP*	m ³ depriv.	5.26E+00	8.56E-02	1.92E-03	1.36E+01	0.00E+00	1.25E-02	0.00E+00	1.03E-01	- 1.66E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption									

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator. The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks

Additional mandatory and voluntary impact category indicators

Results per declared unit										
Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	1.28E+01	2.48E+00	1.73E-02	7.53E+00	0.00E+00	1.02E+00	0.00E+00	1.03E+00	-3.36E+00

Resource use indicators

Results per declared unit										
Impact category	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
PENRE	MJ	2.43E+02	3.33E+01	3.67E-02	4.67E+01	0.00E+00	1.34E+01	0.00E+00	1.79E+00	-
PERE	MJ	1.95E+01	2.88E-01	1.26E-03	1.25E+02	0.00E+00	5.44E-02	0.00E+00	7.29E-02	-
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
PERM	MJ	1.14E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
PENRT	MJ	2.43E+02	3.33E+01	3.67E-02	4.67E+01	0.00E+00	1.34E+01	0.00E+00	1.79E+00	-
PERT	MJ	2.06E+01	2.88E-01	1.26E-03	1.25E+02	0.00E+00	5.44E-02	0.00E+00	7.29E-02	-
FW	m ³	9.05E+00	4.53E-01	1.94E-03	4.55E+00	0.00E+00	6.22E-02	0.00E+00	1.06E-01	-
SM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
Acronyms		PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; PERT = Total use of renewable primary energy resources; FW = Use of net fresh water; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels								

Waste indicators

Results per declared unit										
Impact category	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Hazardous waste disposed	kg	3.00E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
Non-hazardous waste disposed	kg	4.50E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-

Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
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Output flow indicators

Results per declared unit										
Impact category	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-
Material for recycling	kg	0.00E+00	0.00E+00	4.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.20E+00	-
Materials for energy recovery	kg	0.00E+00	0.00E+00	1.70E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.40E+00	-
Exported electrical energy	MJ, per energy carrier	0.00E+00	0.00E+00	1.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.52E+00	-
Exported thermal energy	MJ, per energy carrier	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-

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