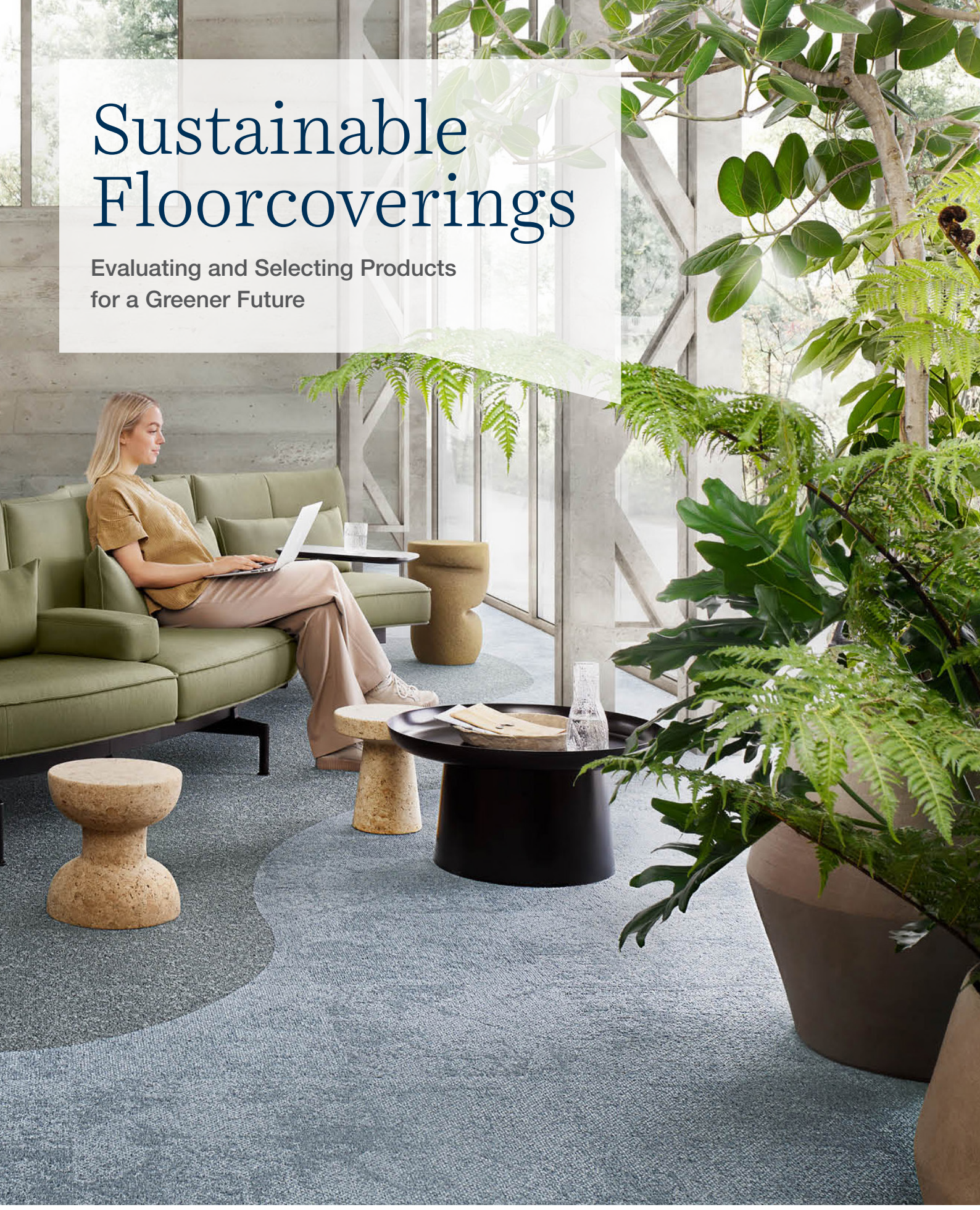
Sustainable Floorcoverings

Evaluating and Selecting Products for a Greener Future



Tarkett

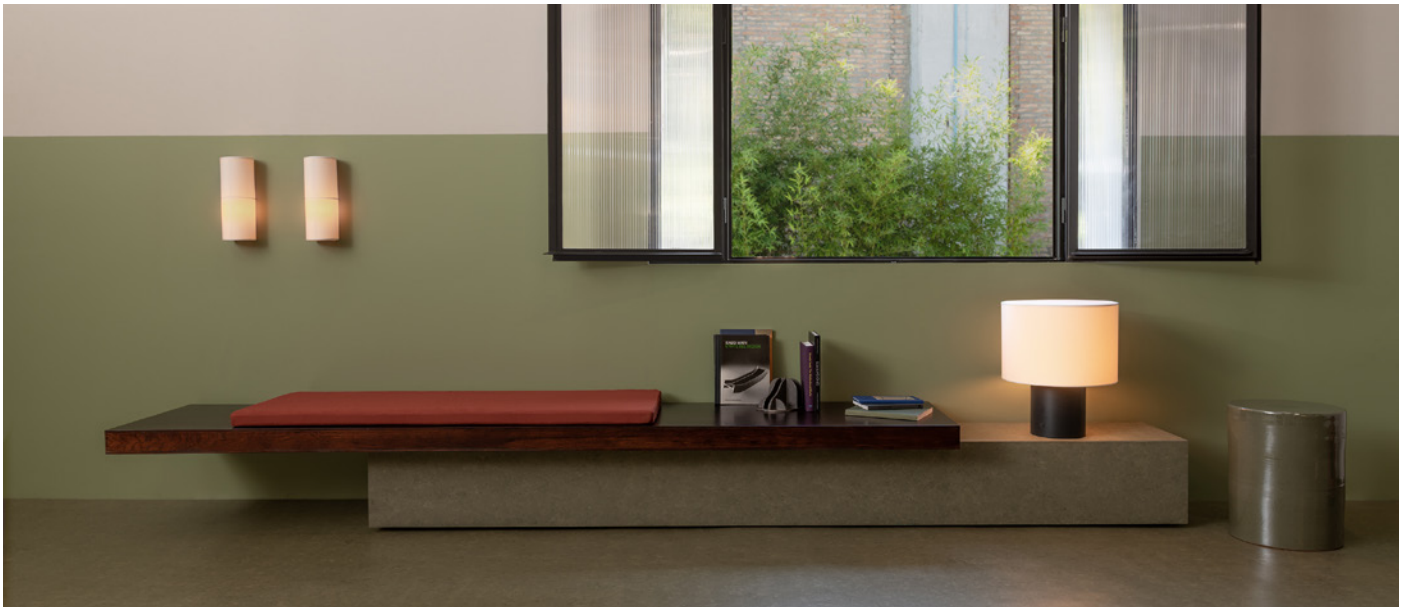
Introduction

Flooring is one of the main contributors to a building's embodied carbon. In a carbon assessment of a mixed-use scheme in London, it was found that the upper floors and roof alone contributed 21% of the building's embodied carbon.[1] As the building sector contributes almost 40% of the world's energy-related carbon emissions,[2] future focus is best placed on specifying sustainable flooring solutions as one strategy to help it move onto a decarbonisation pathway.

Most often, performance, aesthetics, and cost are taken into consideration when evaluating and choosing building materials. With sustainable products, these conventional selection criteria are widened to encompass both health and environmental impacts. Minimising waste and transitioning away from "throw away" single-use products are also key design considerations given the push towards a circular economy.

Examining how flooring materials affect human health and the environment is a challenging process. Designers and specifiers who want to know how products affect the environment and human health need to place an increasing emphasis on product transparency, and they need to have quick and easy access to this information in order to make informed choices. A growing number of resources and tools for green products are available to aid project teams in making thoughtful evaluations and selections.

In this whitepaper, we examine what "sustainable" means in the context of flooring, and provide some useful guidance on evaluating and selecting sustainable flooring products.



What makes flooring “sustainable”?

The majority of sustainable products available on the market offer one or more of the benefits identified below for the environment or human health, and the same holds true when evaluating floorcoverings. The Whole Building Design Guide provides a useful list of common product characteristics, including:[3]

- they promote good indoor air quality (typically through reduced emissions of VOCs and/or formaldehyde);
- they are durable, and have low maintenance requirements;
- they incorporate recycled content (post-consumer and/or post-industrial);
- they have been salvaged from existing or demolished buildings for reuse;
- they are made using natural and/or renewable resources;
- they have low “embodied energy” (the energy required to produce and transport materials)
- they can be easily reused (either whole or through disassembly);
- they can be readily recycled (preferably in a closed-loop recycling system); and/or
- they are biodegradable.

Since building occupants are most directly exposed to these materials when using flooring, the initial focus for these products may be on health and wellness. As flooring materials are typically among the highest embodied carbon elements in a project, reducing their carbon footprint, such as with recycled content and resources abundantly found in nature as well as the product’s end of life recycling options, are also a major consideration.

Responsible sourcing practices should be assessed. A product must be safe, circular, and responsibly made in order to receive Cradle to Cradle (C2C) Certified® certification.[4]

As the construction industry is particularly susceptible to modern slavery risks, components of building products, which are linked to increased risk of modern slavery should undergo increased scrutiny. For wood products, the Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) are different forest certification schemes that set out global requirements for responsible forest management.

Responsible manufacturing means to ensure that goods and services are produced in a way that minimises both waste and pollution. ISO certification ensures a business’ products and services are safe, reliable and of good quality, with ISO14001 Environmental Management Certification and ISO50001 Energy Efficient Management particularly relevant to environmental management and energy efficiency. In addition, consider whether the manufacturer has effective work health and safety practices, utilises renewable energy supplies, innovates or utilises energy-efficient technologies, and minimises waste and water usage.

Installation methods should be carefully considered, not only in terms of ease and efficiency, but also in relation to health and safety. For example, adhesives are widely used to fix floorcoverings to substrate, though many are known to emit VOCs. It is worth looking for low-VOC adhesives or adhesive-free products to reduce the health risk to contractors and end users.

Products with high maintenance requirements in terms of chemical use, water consumption and energy consumption may end up with a negative environmental impact when their full life cycle is considered. In contrast, products that are easy to maintain generally last longer. The longer the useful life of the floor, the more effectively the environmental costs to produce it can be amortised. Inherently durable products that are designed for disassembly and reuse are key components to the circular economy, which then leads to products being used for new high-value applications.

Evaluating flooring products
TOOLS AND RESOURCES

Depending on the type of material used, the environmental impact of flooring products can differ greatly. To effectively assess and specify sustainable flooring products, designers and specifiers should aim to become familiar with a range of tools and resources.

Sustainable building rating schemes
Sustainable building rating schemes provide a framework for building design and construction practices that are environmentally-conscious throughout a building's life cycle. Most schemes include criteria for the use of green building materials. In order to gain points or credits toward the overall rating of the building, architects and designers can choose products that meet the established criteria.

One such scheme is Green Star, which is an internationally recognised rating system setting the standard for healthy, resilient, positive buildings and places. Founded by the Green Building Council of Australia (GBCA) in 2003, Green Star was developed for the Australian environment, and focuses on reducing the impact of climate change, enhancing health and wellbeing, restoring the planet's biodiversity and ecosystems, driving resiliency in the built environment and contributing towards a sustainable economy.

The Green Star rating system and certification procedures are established on a quality process certified to ISO9001, and they are regularly updated with input from stakeholders in the business and government sectors. Achieving certification ensures that projects are evaluated using the most relevant and current benchmarks and standards available.

Sustainable product certifications and eco-labels
The voluntary practice of ecolabelling is used all over the world to certify and label environmental performance. Within a given category, an ecolabel identifies goods or services that have been shown to be more environmentally friendly than other products in the market. Some notable examples of such schemes that are relevant to the flooring sector include the Carpet and Rug Institute's Green Label Plus program for carpets, FSC and PEFC certification for wood products, and Global Green Tag.

Cradle to Cradle
Cradle to Cradle Certified® is the global standard for products that are safe, circular and responsibly made. It assesses the safety, circularity and responsibility of materials and products across five categories of sustainability performance: material health, product circularity, renewable energy and climate requirements, water stewardship and social fairness.

Each attribute is given a score from Basic to Platinum (from the lowest to the highest: Basic, Bronze, Silver, Gold and Platinum) and the lowest ranked attribute defines the global score. C2C Certified Products are valued by some sustainable building labels such as LEED v4 and the WELL Building Standard, giving these products a competitive advantage on the construction market.

GreenRate
GreenRate provides manufacturers with sustainability product assessment without requiring a Life Cycle Analysis. The reach of its assessment components for leverage in certification in the market is substantial. Global GreenTag first developed the GreenRate assessment scheme to align with the green building features of the Green Star rating tools, created by the GBCA.

Product Health Declaration (PHD)
The Green Tag PHD promotes transparency by calling for the disclosure of chemical risks in products used in both homes and workplaces. It is an especially useful tool for specifying sustainable products as it is recognised by the WELL™ Building Standard in five core WELL features and is also compliant with LEED® Product Disclosure Credits.

"In a circular economy, valuable materials, products and resources are maintained as long as possible to reduce waste generation."

PVC Best Practice
The Best Practice Guidelines for PVC address opportunities for the minimisation of environmental and health impacts of the PVC life cycle. The aim of the Credit is to reduce the environmental and health impacts of polyvinyl chloride (PVC) by encouraging the use of PVC material that adheres to Best Practice Guidelines.

Life Cycle Assessment (LCA) and Environmental Product Declarations (EPDs)
LCA is a method for assessing a material's environmental effects over the course of its "life cycle". It aims to identify and quantify all pertinent environmental effects for materials to enable valid comparisons between different products to be made.

An LCA provides the data on which EPDs are created. An EPD is an independently verified and registered document that communicates transparent and comparable data about a product's life cycle environmental impact, including resource consumption of energy, water and renewable resources, and emissions to air, water and soil, are provided. When an EPD is created, it is done so in accordance with ISO 14025 and EN 15804:2012+A2:2019 guidelines.

The use of EPDs support carbon emission reduction by making it possible to compare the impacts of different materials, products, and determine whether the products can be recycled in order to select the most sustainable option. The carbon footprint reduction associated with the recycling of a product is independently confirmed and can be found by referring to Module D of a product's EPD.

With this information, architects, engineers and designers are able to choose the most sustainable option for their project. At the same time, manufacturers can optimise the impact of their products and market their carbon transparency.

Material Health Statement (MHS)
The MHS is a declaration of material assessment and product ingredient disclosure that has been independently verified by a third party. It is based on the Cradle-to-Cradle material assessment process' evaluation of a product's chemical ingredients. After materials are evaluated, they are given a colour-coded rating, providing an easy to understand tool for evaluating and comparing different products.

The generation of a MHS is conducted by the Environmental Protection Encouragement Agency (EPEA). The MHS provides full ingredient disclosure to 100 ppm (parts per million, 0.01%) and includes relevant health and environmental information for consumers.[5]

“The longer the useful life of the floor, the more effectively the environmental costs to produce it can be amortised.”

From linear to circular flooring

The circular economy is a key framework through which designers and specifiers can choose sustainable flooring solutions. In a circular economy, valuable materials, products and resources are maintained as long as possible to reduce waste generation.

One method that product designers are facilitating the transition to a circular economy is by designing for disassembly or deconstruction. It is environmentally beneficial to be able to disassemble a product’s original components and reuse them in a similar or totally different product. It lessens the requirement for new raw materials and the energy expended to mine or extract them.

Longer lasting products are important, but it is the ability to extend their useful life indefinitely that sets the circular economy apart from the linear model. For this reason, ease of maintenance, repair and upgrades are common characteristics of “circular” products, as are readiness for re-use and recycling. Designers and specifiers should consider not only how durable a flooring product is, but also how easy it is to maintain and whether there are options to restore it to extend its life.

Recycling is a necessary component of a circular economy, particularly when there are no other alternatives for re-use or repair. To promote the circular economy, flooring manufacturers can design products using recycled and/or recyclable materials, or organise product take-back and recycling initiatives to ensure products and materials do not go to waste.

Sustainability across all stages
TARKETT'S INNOVATIVE FLOORING SOLUTIONS

Tarkett is committed to a sustainable, circular economy that creates value for everyone, closing the loop on waste, preserving natural resources and reducing the impact on climate change to give you peace of mind on your product choice. The company strives to make high quality, sustainable flooring to help you create healthier and people-friendly spaces.

iQ vinyl floors contribute to a truly circular economy

Suitable for any commercial environment, Tarkett's iQ collections of Homogeneous Vinyl flooring are developed with the circular economy in mind. Its ease of installation, outstanding durability, lowest life-cycle cost and treatment with unique dry-buffing restoration mean iQ outperforms everything else on the market. In addition, iQ floors have extremely low VOC emissions contributing to optimal indoor air quality and are 100% phthalate free for a healthier indoor environment.

iQ Eminent Homogeneous Vinyl flooring is ideal for extra heavy duty commercial and industrial areas, available in a palette of primary and neutral colours in a unique non directional design with a 3D pattern featuring highlighting and multicolour contrast chips. iQ Eminent offers extra design flexibility for architects looking to create a harmonious flooring experience.

Designed for education and healthcare facilities, **iQ Granit** offers extreme durability as well as superior wear, stain and abrasion resistance for all heavy-traffic areas. With its classic functional design featuring subtle directional pattern, it spans across an incredibly broad palette of 50 colours.

Linoleum – sustainable, durable and beautiful

Tarkett Linoleum is a bio-based resilient floor, made from natural and renewable ingredients, and manufactured at the company's Narni site in Italy, using the same ingredients for over 100 years. This flooring solution is sustainable and environmentally friendly, with 100% of the ingredients positively assessed according to the Cradle to Cradle eco-design framework. It is treated with our unique xf^2 surface protection for extreme durability, easy cleaning and cost-effective maintenance.

DESSO Ecobase – 100% recyclable carpet tile

EcoBase is Tarkett's 100% recyclable Cradle to Cradle Gold-certified carpet tile backing. Made with entirely positively-defined ingredients, it has achieved Cradle to Cradle Platinum level for material health, helping to create a healthier, flourishing work space, as health and safety moves up the workplace agenda.

Following a unique collaboration with Dutch drinking water companies to upcycle chalk, EcoBase now contains 80% positively defined chalk, which is itself derived from 100% defined recycled materials. Every material used to make EcoBase can be safely recycled with no loss of quality.

Granit and Primo Safe.T

Granit and Primo Safe.T are durable commercial flooring solutions for heavy-traffic wet areas. They provide a confident grip for bare feet and reduce the risk of slipping, even when covered with soap and water. As the only safety floors on the market with a closed-loop recycling program, Granit and Primo Safe.T are the ideal solutions for spaces where safety and sustainability are paramount.

ReStart® take-back and recycling programme

Globally, Tarkett has been recycling since 2010 and processed 112,000 tonnes of waste into new floors. In 2022, Tarkett Australia have joined the program with a local pilot where pre-consumer waste is reduced through a granulation process locally for exporting back to the company's manufacturing plants. Granulated PVC is then sent to Tarkett EU for reprocessing into new vinyl floors.

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All information provided correct as of January 2023.

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