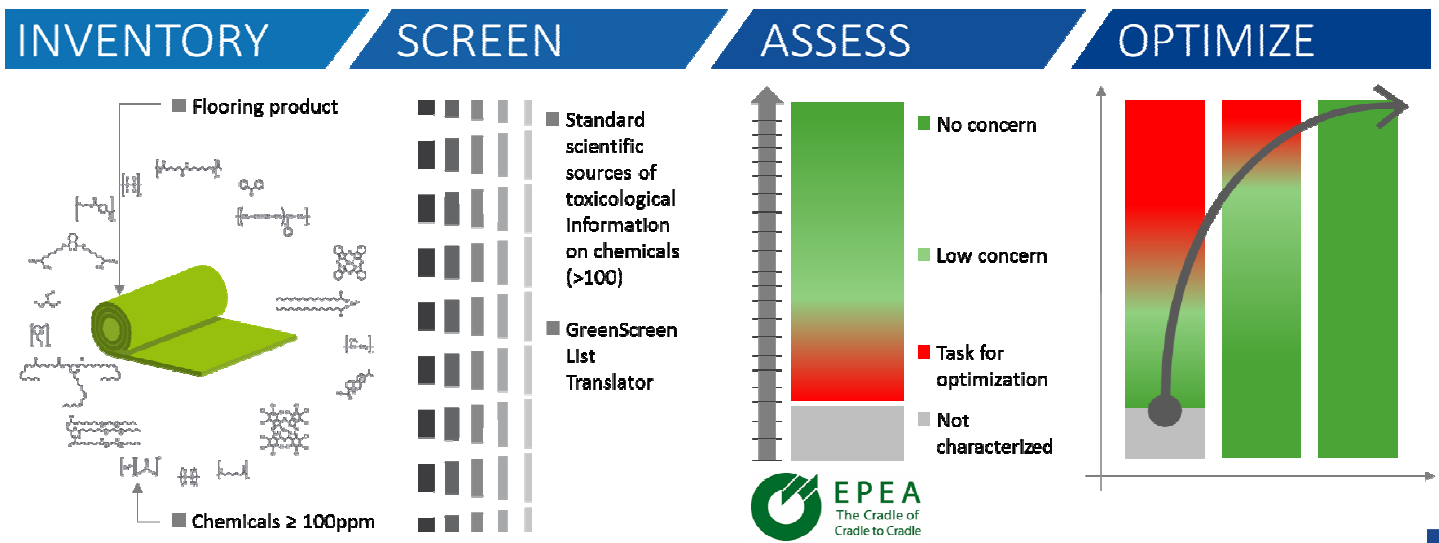


# Tarkett's Path to Positive Optimization Strategy

It is estimated that we spend approximately 90% of our time indoors, therefore, it is important to consider the building materials with which we surround ourselves. Tarkett's goal is to design products that will enhance the human experience and allow us to live and work in spaces that promote health and well-being. Transparency and material reporting is essentially the first step but in order to make real and significant changes, we need to go a step further and not only inventory, screen and assess, but also optimize products for present and future uses.

At Tarkett, the optimization of our product compositions is at the core to our "Closed Loop, Circular Design" strategy powered by Cradle to Cradle® principles and the Circular Economy.

Tarkett's goal is to design our products today to be our raw materials of tomorrow, applying the first Cradle to Cradle® principle (Waste = Food), to select healthy and safe materials that can be perpetually cycled.



## The Cradle to Cradle Product Optimization process is based on the following 4 steps:

- ① **Material Inventory:** In collaboration with our suppliers, we inventory the raw materials used in our products to 100 ppm (parts per million) and identify them by Chemical Abstracts Service Registry Number (CASRN)
- ② **Material Screening:** Individual chemicals are screened for their hazard rating using the Green Screen List Translator (GS-LT), along with more than 100 chemical hazard lists and scientific sources of toxicological information in use at EPEA (Environmental Protection and Encouragement Agency).
- ③ **Material Assessment:** Material Assessment: The product and its materials are assessed according to the Cradle to Cradle® principles and considering both the intrinsic hazard/safety properties of chemicals and occupant exposure. The product's environmental and health quality is assessed on the basis of a target scenario where materials involved in sourcing, production, use and post-use handling can serve as technical nutrients for future production or interact beneficially with exposed organisms and ecosystems as biological nutrients. The assessment is conducted by EPEA, the European Cradle to Cradle scientific research Institute based in Germany. For more information, please visit EPEA website (<http://www.epea.com/>).
- ④ **Optimization:** By using this third party material assessment methodology, our goal is to select materials that are safe, healthy and beneficial for humans and the environment and that can be perpetually cycled.

Thank you for considering our products and for your commitment to improving the built environment.

Diane Martel  
Vice President of Environmental Planning and Strategy

Dhruv Raina  
Product Sustainability Director

## Linoleum xf<sup>2</sup> / Linosom xf<sup>2</sup> / Harmonium xf<sup>2</sup>

Issued to: Tarkett  
 Issue date: March 07.2018  
 Expiration date: March 06.2020  
 Evaluation threshold: At least 100 ppm of the final product  
 After-use scenario: <http://tarkett.com/en/content/reuse-0>



C2CPII Certificate 3294  
 Valid until 23.01.2020

### Product specifications

Veneto xf<sup>2</sup>, Etrusco xf<sup>2</sup>, Style Elle xf<sup>2</sup> / Lenza xf<sup>2</sup>, Style Emme xf<sup>2</sup> / Tonali xf<sup>2</sup>, Sicuro xf<sup>2</sup> R10, Trentino xf<sup>2</sup>, Originale xf<sup>2</sup>,  
 Linoleum xf<sup>2</sup> Bfl, Essenza, Linosport xf<sup>2</sup>, Linosport Classic / Narnidur, Acoustic Cork xf<sup>2</sup> 15 / Acoustic Cork Essenza 15,  
 Silencio xf<sup>2</sup> 18 / Linosom Silencio xf<sup>2</sup> 18 / Acoustic xf<sup>2</sup> 18 / Harmonium xf<sup>2</sup> Acoustiflor, Ecopure xf<sup>2</sup>, Elafono / Linosom Elafono

EPEA Registry No: MHS 39897.1

MHS Version: 2.0

MATERIAL FUNCTION	CHEMICAL COMPONENTS	CASRN	CONTENT	EPEA RATING	COMMENT ON EPEA RATING	GS-LT/ GS-BM	REACH	
Polymer precursor	Linseed oil	8001-26-1	22-33%			LT-UNK	✓	
Filler	Wood powder - Cellulose	9004-34-6	17 - 35%		Sources PEFC certified. Potential health issue related to wood dust inhalation. No concern in finished product.	LT-UNK	✓	
	Wood powder - Lignin	9005-53-2				LT-UNK	✓	
	Cork	61789-98-8				N.I.	✓	
	Calcium carbonate	1317-65-3	11-39%		Natural mineral containing traces of quartz. Potential health issue related to dust inhalation during mining/production. No concern in finished product.	LT-UNK	✓	
	Cured linoleum scraps (Option)	-	0 - 10%		Post-industrial materials from Tarkett productions with a composition reflecting the composition of Tarkett linoleum products without foam	N.I.	✓	
Binder	Colophony	8050-09-7	3-5%		Colophony is sensitizing upon skin contact only in the oxidized form. No concern in product form due to lack of exposure.	N.I.	✓	
Backing	Jute	-	5-17%		Contains unproblematic additives, the jute batching oil has acceptable heavy metal and PAH concentrations.	LT-UNK	✓	
Pigments	Titanium dioxide	13463-67-7	< 10%		Organic and inorganic (Titanium dioxide and iron oxides) pigments involved. Potential health issue related to dust inhalation during mining/production of mineral pigments possible. No concern in finished product. Halogenated organic compounds can lead to dioxin formation when combusted	LT-1	✓	
	Carbon black	1333-86-4				LT-1	✓	
	Iron oxide pigments	1309-37-1				BM2	✓	
		12227-89-3				LT-UNK	✓	
		1310-14-1				LT-UNK	✓	
	Organic pigments	Proprietary 1				LT-UNK	✓	
						LT-P1	✓	
				LT-UNK	✓			
				N.I.	✓			
Vegetal colorants <sup>a</sup>	Walnut husk powder	-	< 7%		Vegetal pigments with no indication for health issues.	N.I.	✓	
	Vegetal carbon powder	-				N.I.	✓	
Additional backing <sup>b</sup>	PU Foam	Proprietary 2	< 18%		Reformulated recycled polyurethane formulation, partly defined	N.I.	-	
							N.I.	✓
							LT-UNK	✓
Adhesive <sup>c</sup>	Adhesive	Proprietary 2	< 4%		Chemically defined adhesive. Red labelled components are quantitatively minor (e.g. close to 100 ppm)	BM4, LT-1, LT-P1, LT-UNK, N.I.	✓	

MATERIAL FUNCTION	CHEMICAL COMPONENTS	CASRN	CONTENT	EPEA RATING	COMMENT ON EPEA RATING	GS-LT/ GS-BM	REACH
Coating	Polyurethane acrylate coating	Proprietary 1,2,3	< 1%	High concern	Surface reinforcement based on polyurethane acrylate chemistry. UV cured with a photo-initiator that is associated with health issues.	N.I.	✓
	Or Acrylic finish <sup>d</sup>	Proprietary 2		Moderate concern	Contains ingredients of no/low concern, good VOC picture (applied on linoleum). No concern in finished product	LT-1, LT-P1, LT-UNK, N.I.	✓
Formulation auxiliaries and impurities	Proprietary	Proprietary 1	< 1.2%	No concern	Formulation auxiliaries and impurities of syntheses involved in the production of various inputs. The proprietary component accounts for less than 0.1%	BM4	✓
	Aluminium oxide	1344-28-1		Moderate concern		LT-UNK	✓
	Magnesium carbonate	13717-00-5		Moderate concern		LT-1	✓
	Calcium dihydroxide	1305-62-0		Moderate concern		N.I.	✓
	Jute batch oil	-		Moderate concern		LT-UNK	✓
	Tamarind kernel powder	-		Moderate concern		N.I.	✓
	Proprietary	Proprietary 3		Unknown concern		N.I.	-

a: only in Originale range; b: only in Silencio xf<sup>2</sup> 18 / Linosom Silencio xf<sup>2</sup> 18 / Acoustic xf<sup>2</sup> 18 / Harmonium xf<sup>2</sup> Acoustiflor, Ecopure xf<sup>2</sup>; c: only in Silencio xf<sup>2</sup> 18 / Linosom Silencio xf<sup>2</sup> 18 / Acoustic xf<sup>2</sup> 18 / Harmonium xf<sup>2</sup> Acoustiflor, Ecopure xf<sup>2</sup>, Acoustic Cork xf<sup>2</sup> 15 / Acoustic cork Essenza 15; d: only in Veneto Essenza, Acoustic cork Essenza 15

EPEA's rating methodology is based on the Cradle to Cradle approach with the European Precautionary principle. It is made in relation with a quality target, an after-use scenario and on the background of the specific supply chain materials used by the article's manufacturer. The assessment of hazard/safety properties of chemicals is made at the best of our knowledge at the date of MHS™ issue: (See [MHS development Guidance V2.0](#)). EPEA believes the data forth herein are accurate as of the date hereof. EPEA makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such data are offered solely for your consideration, investigation and verification.

  
**Michael Braungart**  
 CEO

EPEA Internationale Umweltforschung GmbH

  
**Alain Rivière**  
 Senior Scientist

EPEA Internationale Umweltforschung GmbH

#### Legend:

##### EPEA RATING:

- No concern
- Moderate concern
- High concern – Task for material optimization
- Unknown concern – Task for knowledge development

##### REACH compliance:

- ✓ : Substance complies with REACH regulation European Union Regulation EC 1907/2006 applicable to this article or substance is listed neither in Annex XIV nor in Annex XVII nor as SVHC
- XVII** or **XIV**: Substance listed in Annex XVII (Restriction) or Annex XIV (Authorisation) of REACH regulation applicable to this article
- SVHC**: Substance of Very High Concern. Candidate for listing in Annex XIV (Authorization list) of REACH Regulation at a concentration above 0.1%

##### GS-LT\*

- LT-1**: Chemical is found on an authoritative list of the most-toxic chemicals
- LT-P1**: Chemical may be a serious hazard, but the confidence level is lower
- LT-UNK**: Unknown (no data on List Translator Lists)

##### GS- BM\*

- BM1**: Avoid: Chemical of High Concern
- BM2**: Use but search for Safer Substitutes
- BM3**: Use but still opportunity for improvement
- BM4**: Prefer: Safer Chemical
- BMU**: "Unspecified"; insufficient data
- N.I.** (No GS rating): Chemical is not listed in the source of GS and GS-LT ratings

\* GreenScreen List Translator Score and GreenScreen Benchmark Score according to Toxnot classification (<https://toxnot.com/>)

Proprietary 1, 2 or 3: Distinguishing between owners of information (see [MHS Development Guidance V2.0](#))

# LEED v4 – Score Card

## Linoleum Harmonium xf<sup>2</sup>

**PRODUCTS COVERED** Veneto, Etrusco, Lenza & Tonali

### MATERIAL & RESOURCES

#### MRc2. Building product disclosure and optimization – Environmental Product Declarations

- Option 1: Environmental Product Declaration (EPD) – 1 point
  - Product-specific EPD       Industry-wide (generic) EPD       Product-specific declaration
- Option 2: Multi-attribute Optimization – 1 point
  - 3<sup>rd</sup> party certified products that demonstrate impact reduction below industry average

#### MRc3. Building product disclosure and optimization – Sourcing of Raw Materials

- Option 1: Raw Material Source and Extraction Reporting – 1 point
  - U.N. Global Compact       GRI Sustainability Report       ISO 26000       OECD
- Option 2: Leadership Extraction Practices – 1 point

Bio-based materials	Pre-Consumer	Post-Consumer	Manufacturing Location	Extended Producer Responsibility
75%	34%	-	Italy	Yes (ReStart® program)

#### MRc4. Building product disclosure and optimization – Material Ingredients

- Option 1: Material Ingredient Disclosure – 1 point
  - Manufacturer Inventory       Cradle to Cradle Certification       Declare       HPD
- Option 2: Material Ingredient Optimization – 1 point
  - Cradle to Cradle Certification       GreenScreen Benchmark       REACH       Other

#### MRc5. Construction and demolition waste management

- Reclamation and recycling program proposed – Tarkett's ReStart® program

### INDOOR ENVIRONMENTAL QUALITY

#### EQc1. Enhanced Indoor Air Quality strategies

- Enhanced IEQ Strategies – Abrasive Action entry walk-off systems – 1 point

#### EQc2. Low-emitting materials

- Certification compliant with California Department of Public Health (CDPH) – FloorScore®
  - TVOC emissions     0.5 mg/m<sup>3</sup> or less     Between 0.5 and 5.0 mg/m<sup>3</sup>     5.0 mg/m<sup>3</sup> or more

For more information please visit [www.tarkettna.com/mhs](http://www.tarkettna.com/mhs) or contact us [mhs@tarkett.com](mailto:mhs@tarkett.com)