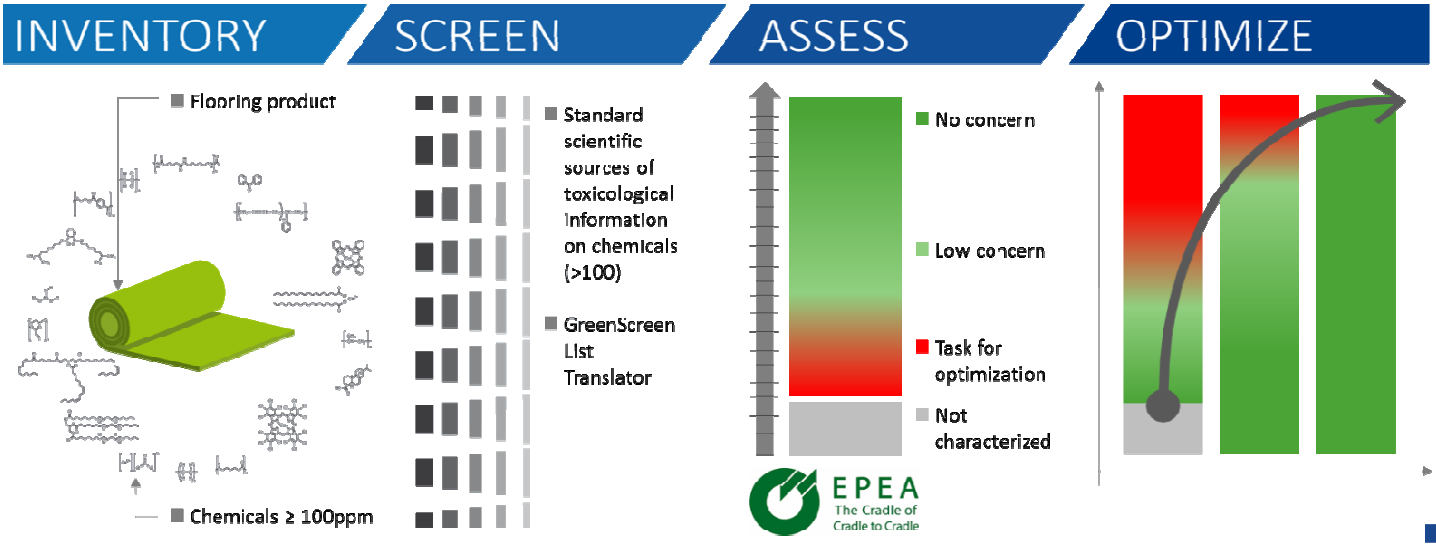
Tarkett's Path to Positive Optimization Strategy

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:

- **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).
- **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), the European Cradle to Cradle scientific research Institute based in Germany. For more information, please visit EPEA's website (http://www.epea.com).
- **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 assess 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.
- **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

Tarkett | THE ULTIMATE FLOORING EXPERIENCE

Material Health Statement - MHS™

EPEA The Cradle of Cradle to Cradle

Tandus Centiva Ethos® Modular

Issued to: Tarkett
Issue date: 30.11.2017
Expiration date: 29.11.2019
Evaluation threshold: At least 100 ppm of the final product
After-use scenario: https://www.tandus-centiva.com/sustainability/recycling-and-reuse
EPEA Registry No: MHS 39895-1 MHS Version: 2.0

CERTIFIED cradletocradle SILVER
Certificate 3128
Valid until 26.04.2019

	CHEMICAL COMPONENTS	CASRN	CONTENT	EPEA RATING	COMMENT ON EPEA RATING	GS-LT/ GS-BM	REACH
Polymers	NYLON 6	25038-54-4	10-35%		Polymers suitable for thermomechanical recycling and partially for chemical recycling (Nylon 6 und Polyethylene terephthalate).	LT-UNK	✓
	NYLON 6.6	32131-17-2				LT-UNK	✓
	Polyvinyl butyral	68648-78-2	15-30%			LT-UNK	✓
	Polyethylene terephthalate	25038-59-9	<5%			LT-UNK	✓
	Acrylic resin	-	<0.5%		Synthetic polymers varying with each product specification.	N.I.	-
	Other polymers	Proprietary 2	<2%			LT-UNK, N.I.	✓
Fillers	Calcium carbonate	471-34-1	15-35%		Natural mineral containing < 1% quartz. Potential health issue related to dust inhalation during mining. No concern in finished product. Siliceous earth consists basically of quartz.	LT-UNK	✓
	Aluminium Hydroxide	21645-51-2	5-20%			BM2	✓
	Magnesium carbonate hydroxide	12125-28-9	<0.1%			LT-UNK	✓
	Mix of mica and amphibole	-				N.I.	-
Glass	Continuous filament glass fiber	-	1-3%		No concerns in finished product.	N.I.	-
Pigments	Pigment Black 7	1333-86-4	<2%		Potential health issues related to dust inhalation during production of mineral pigments. No concern in the finished product. Contained halogens in organic pigments determine the red rating. Few pigments are not defined yet.	BM1	✓
	Titanium dioxide	1317-70-0, 13463-67-7				LT-1	✓
	Other pigments	Proprietary 2				LT-UNK, BM3	✓
						BM1, BM2, LT-1, LT-UNK	✓
	Undefined pigments	Proprietary 3				N.I.	-
Dyes	Acid Yellow 25	6359-85-9	<1%		Dyes are halogen and metal free, assessment partially on-going.	LT-UNK	✓
	Acid Blue 324	70571-81-2				N.I.	✓
	Other dyes	Proprietary 2				N.I.	✓
Plasticizers	TEG-EH	94-28-0	2-10%		Source for formation of traces of 2-ethylhexanoic acid detectable in VOC emission testing. De-listed from California's Proposition 65 in 2014.	LT-UNK	✓
	Fatty acids, tall-oil, potassium salts	61790-44-1	<1%		Natural based plasticizer	LT-UNK	✓
	Other Plasticizer	Proprietary 2			No concerns in finished product.	LT-UNK	✓
Antisoiling agents	Eco-Ensure for Nylon 6 application	Proprietary 2	<3%		Alternatives to fluorinated organic anti-soiling agents. Assessment ongoing for undefined agent.	LT-UNK	✓
						LT-UNK	✓
	DuraTech® for branded Nylon 6.6 application	Proprietary 3				N.I.	-

	CHEMICAL COMPONENTS	CASRN	CONTENT	EPEA RATING	COMMENT ON EPEA RATING	GS-LT/ GS-BM	REACH
Additives	Sodium polyacrylate	-	<2%		Surfactants, thickener, defoamer, antistatics. No particular issues. Assessment is partially ongoing	N.I.	-
	C16 Alkyl dimethyl amine oxide	7128-91-8				LT-P1	✓
	Ethoxylated natural alcohol	Proprietary 3				N.I.	-
	Benzene, 1,1'-oxybis-, tetrapropylene derivs., sulfonated, sodium salts	119345-04-9				LT-P1	✓
	Urea	57-13-6				LT-UNK	✓
	Calcium distearate	1592-23-0				LT-UNK	✓
	Other additives	Proprietary 2 and 3				LT-UNK, LT-1	✓
						LT-UNK	-
Process aids	Alkyl ether phosphate salt	Proprietary 3	<1%		Processing aids have a functional purpose in the production process or had it to produce inputs by suppliers. Some are still undefined.	N.I.	✓
	Silicone oils	Proprietary 3				N.I.	-
	Undefined Fiber finish	Proprietary 3				N.I.	-
	Other process aids	Proprietary 2 and 3				LT - UNK, N.I.	✓
						LT - UNK, N.I.	✓
						N.I.	-
Impurities	Sodium oxide	1313-59-3	<1%		Residues from different inputs. Assessment based on low content in finished products.	LT - UNK	✓
	Crystalline silica - Quartz type	14808-60-7				LT-1	✓
	Caprolactam	105-60-2				LT - UNK	✓
	Glycerolpropoxytriacrylate	52408-84-1				LT-UNK	✓
	Dolomite	16389-88-1				N.I.	✓
	1,6-Hexandioldiacrylate (HDDA)	13048-33-4				LT-P1	✓
	Other impurities	Unknown				N.I.	-

UNDEFINED CONTENT	% IN PRODUCT	COMMENT
Recycled Yarn	0-15%	Some yarns contain post consumer content

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
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EPEA Internationale Umweltforschung GmbH

Alain Rivière
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Legend:

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

REACH compliance:
✓: Substance is listed neither in Annex XIV nor in Annex XVII nor as SVHC and complies with European Union Regulation EC 1907/2006 applicable to this article.
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%
- : Not applicable due to missing CAS

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/)

** For EPEA's position on PVC and chlorine management. Please see: http://epea.com/de/node/1322

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

LEED v4 – Score Card

Tandus Centiva ethos® Modular

PRODUCTS COVERED Tandus Centiva ethos® Modular

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

☑ 3rd 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
-	19-33%	27-43%	Dalton, GA	Yes (ReStart® program)

MRc4. Building product disclosure and optimization – Material Ingredients

☑ Option 1: Material Ingredient Disclosure – 1 point

☑ Manufacturing 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/m³ or less ☐ Between 0.5 and 5.0 mg/m³ ☐ 5.0 mg/m³ or more

For more information please contact us: mhs@tarkett.com

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