

# VERDUREN<sup>TM</sup>

## Hygienic Sustainable Seamless Flooring for Healthcare

### ENVIRONMENTAL PRODUCT AND HEALTH CARE DECLARATION

Verduren Rx, Hygienic Sustainable Seamless Flooring for Healthcare. This declaration is an environmental product declaration in accordance with ISO 14025 and EN 15804 that describes the environmental and sustainable characteristics of the Verduren Rx product.

#### Product Definition

##### Product Classification and Description

Verduren is a liquid applied resilient floor covering that is built up in two layers that form a cross-linked bond during the curing process. Verduren is made from all-natural raw materials making it a highly environmentally friendly product. The key raw materials include linseed oil, which comes from the flax plant seeds, Castor oil from the castor bean or castor oil plant, recycled cork flour, cork particles and limestone. Because of the natural raw materials, Verduren is biodegradable.

##### Range of Application

Verduren is classified in accordance with EN ISO 24011 to be installed in the following use areas defined in EN ISO 10874



**CLASS 23 DOMESTIC HEAVY**  
Minimum thickness 2 mm



**CLASS 34 COMMERCIAL VERY HEAVY**  
Minimum thickness 2 mm



**CLASS 43 INDUSTRIAL HEAVY**  
Minimum thickness 2.5 mm

##### Product Standard

Verduren has the following technical specifications:

- Meets or exceeds all technical requirements in ASTM F 2034 Standard Specification for Linoleum Sheet Flooring.
- Meets or exceeds all technical requirements in EN-ISO 24011 Specification for plain and decorative Linoleum.

##### Technical Data



**ELECTRICAL BEHAVIOR - EN 1815 • < 2 kV**



**THERMAL CONDUCTIVITY - EN ISO 12524**  
0.15 W/m.K, suitable for underfloor heating  
ASTM C-518-17 • 0.15 W/m.K



**CE NUMBER**  
15 • DoP08CORQ017 • EN 13813:2002



**Contains recycled content**



**REACTION TO FIRE - EN 13501-1 • Bfl-S1**  
Class 1 when tested in accordance with  
ASTM E-648 Critical Radiant Flux • Meets  
450 or less, when tested in accordance with  
ASTM 662/ NFPA 258 Smoke Density



**SLIP RESISTANCE - DIN 51130 • R9**  
standard / R11 upon request EN • 13893 •  
DS:  $\geq 0,30$  • Meets or exceeds the industry  
recommendation of  $>0.5$  for flat surfaces  
when tested in accordance with ASTM  
D-2047

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### Accreditation

Verduren complies with the quality tested in Indoor Air Comfort GOLD for:

- Belgian regulation
- French regulation, A class  
(or A+ class for indoor Air ComfortGOLD)
- German regulation, AgBB
- Draft Lithuanian regulation
- Planned Swedish regulation
- E1 classification
- EMICODE
- GUT
- Several EU ecolabel criteria
- Several Blue Angel criteria
- Several Austrian ecolabel criteria
- LEED outside North America
- FEMB standard for sustainable office furniture
- BREEAM
- M1 only partly

**Verduren also complies with the regulations as specified in:**

- US programs such as CDPH, BIFMA, Cradle-to-cradle, Greenguard, FloorScore, CARB, and TSCA.
- Danish Indoor Air Climate label

### Delivery Status

15 kg/ 33lbs pails.

Product weight installed:

2.2 mm thickness 2.2 kg / 4.84 lbs / sqm

2.5 mm thickness 2.5 kg / 5.50 lbs / sqm

### Production of Main Materials

#### Linseed oil

Linseed oil is obtained by pressing the seeds of the flax plant. After filtering a clear golden yellow liquid remains.

#### Castor oil

Castor oil is a vegetable oil obtained by pressing the seeds of the castor oil plant (*Ricinus communis*). Castor oil is colorless to very pale. The United States Food and Drug administration has categorised castor oil as "safe and effective".

#### Cork Flour and Cork Granules

Every 9 years the stem of the Cork Tree is sustainably removed without cutting the tree. The cork flour and cork granules are recycled corks stoppers and residue from the cork industry.

### Material Content

Component Material Availability Origin

Component	Material	Availability	Origin
Binder	Linseed oil and castor oil	Biobased Crop	USA/India/Europe
Filler	Cork flour and cork granules Calcium Carbonate	Biobased renewable Abundant mineral	Portugal/Spain/Germany
Pigment	Titanium dioxide and other pigments	Limited mineral	Global
Finish	Waterborne UV Urethane	Biobased	Netherlands

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### Production of Main Materials cont.

#### Calcium Carbonate

An abundant mineral found in all parts of the world as the chief substance in rocks like marble and limestones. It can be ground to varying particle sizes and is widely used as a filler.

#### Titanium Dioxide

A white pigment produced from the mineral rutile, a naturally occurring form of titanium dioxide.

Other pigments used are mainly iron oxide based.

#### Top Coat

Verduren Top Coat is a Site Applied Water-Based UV Coating containing an active antimicrobial additive.

#### RedList Free

Verduren is free of ingredients mentioned in the Red List of ILFI.

The International Living Future Institute (ILFI) has developed the following red list of chemicals that may not be included in materials used in construction that seeks to meet the criteria of the Living Building Challenge (LBC). According to ILFI, the list is composed of materials that should be phased out of production due to health concerns. The list is updated as new science emerges. The most recent update came in May 2014.

The LBC red list is shown directly below. This list includes both chemicals and chemical groups. In 2014, ILFI published a spreadsheet that represents the full list of chemicals. This spreadsheet expands these chemical groups into the individual chemicals of which they are composed. As of May 2014, this spreadsheet contained 815 individual chemicals.

- Alkylphenols
- Asbestos
- Bisphenol A
- Cadmium
- Chlorinated polyethylene and chlorosulfonated polyethylene (CSPE)
- Chlorofluorocarbons (CFCs)
- Chlorobenzenes
- Chloroprene (neoprene)
- Chromium VI
- Chlorinated polyvinyl chloride
- Formaldehyde (added)
- halogenated flame retardants (HFRs)
- Hydrochlorofluorocarbons (HCFCs)
- Lead (added)
- Mercury
- Polychlorinated biphenyls
- Perfluorinated compound
- Phthalates
- Polyvinyl chloride
- Polyvinylidene chloride
- Short Chain Chlorinated paraffins
- Wood treatments, containing creosote, arsenic or pentachlorophenol
- Volatile organic compounds (VOCs) in wet applied products

#### Production

The binders in Verduren are mixed with the fillers to obtain a creamy substance. After mixing, the materials are measured into buckets and are ready for use. The buckets can come colored or uncolored. On-site, the Verduren is mixed with a reactive component which starts the hybrid curing of the linseed oil and castor oil.

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### Health Safety and Environmental Aspects During Production

The production process is done according to the specifications in:

- ISO 14001 Environmental Management Systems
- OHSAS 18001 Occupational Health and Management Systems

### Delivery

Distribution is provided by truck, train and container ship.

### Production Waste

During production, there is no waste of materials.

### Installation

There is no waste or loss of materials during installation.

### Health, Safety and Environmental Aspects During Installation

Verduren is self adhering and no adhesives are required.

### Cleaning and Maintenance

Recommended cleaning regimens will vary depending on the use of the areas where Verduren is installed. In high traffic areas, more frequent cleaning may be needed. The use of an entrance floor mat will reduce the need for cleaning frequency.

At a minimum, dust and grit should be removed from floors on a daily basis, typically by dry cleaning with a vacuum cleaner or a dust-mop. Wet cleaning with a single disc buffing machine as needed using appropriate maintenance pad.

### Prop 65 List Free

Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted as a ballot initiative by the State of California in November 1986.

The proposition protects the state's drinking water sources from being contaminated with chemicals known to cause cancer, birth defects or other reproductive harm, and requires businesses to inform Californians about exposures to such chemicals. Proposition 65 requires the state to maintain and update a list of chemicals known to the state to cause cancer or reproductive toxicity.

Verduren is free from the chemicals in the P65 list, in the latest version of 29th dec 2017.

**A revolution in resilient flooring.**