

# Environmental Product Declaration

## Template® Storage



Used as a perimeter structure and as a storage spine, Template has the architectural presence to define work zones without the cost or permanence of traditional architectural walls. In addition to delineating the overall workspace, Template can serve as an interior border to define team spaces and shared resources, encouraging collaboration among small clusters of peers. Because it stands independently of a building's architecture and other furniture, Template offers a wide variety of planning opportunities.

### Recycled Content

15% Post-consumer recycled content

### Functional Unit

The functional unit is 0.15m<sup>3</sup> of storage capacity for a period of 10 years. As Template has an expected service life of over 10 years, one product is needed to fulfil the functional unit.

# Environmental Product Declaration

## Template®

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025. EPDs rely on Life Cycle Assessment (LCA) to provide information on a number of environmental impacts of products over their life cycle. Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass.

LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

**Accuracy of Results:** EPDs regularly rely on estimations of impacts, and the level of accuracy in estimation of effect differs for any particular product line and reported impact.

**Comparability:** EPDs are not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages, are based on different product category rules or are missing relevant environmental impacts. EPDs from different programs may not be comparable.



Certified  
Environmental  
Product Declaration  
www.nsf.org

<b>Program Operator</b>	NSF Certification, LLC
<b>Declaration Holder</b>	Knoll
<b>Declaration Number</b>	EPD10334
<b>Declared Product</b>	Template® Storage
<b>Reference PCR</b>	NSF International-BIFMA PCR for Storage: UNCPC 3812
<b>Date of Issue</b>	December 13, 2017
<b>Period of Validity</b>	5 Years (Expiration: December 13, 2022)
<b>Contents of the Declaration</b>	Product definition and information about building physics Information about basic material and the material's origin Description of the products' manufacture Indication of product processing Information about the in-use conditions Life cycle assessment results Testing results and verifications

The PCR review was conducted by

PCR Review Panel  
Chair: Thomas P. Gloria  
ncss@nsf.org

This declaration was independently verified  
in accordance with ISO14025 by NSF  
Certification, LLC

☐ INTERNAL

☒ EXTERNAL

Tony Favilla, NSF Certification, LLC

This life cycle assessment was independently  
verified in accordance with ISO14044 and the  
reference PCR by

Thomas Gloria, Industrial Ecology Consultants

This EPD conforms with ISO 21930-2007

Date of last revision: March 2021

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# Environmental Product Declaration

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### • Reference Product Description

Storage

1

Product Category

Occupants Supported  
by Product

1.77 m<sup>3</sup>  
(5.80 ft<sup>2</sup>)

12.1 kg/FU  
(26.7 lb)

Volume

Reference Flow

143 kg  
(315.26 lbs.)

15%

14%

Storage Mass

Post-Consumer  
Recycled Content

Post-Industrial  
Recycled Content

### • Functional Unit

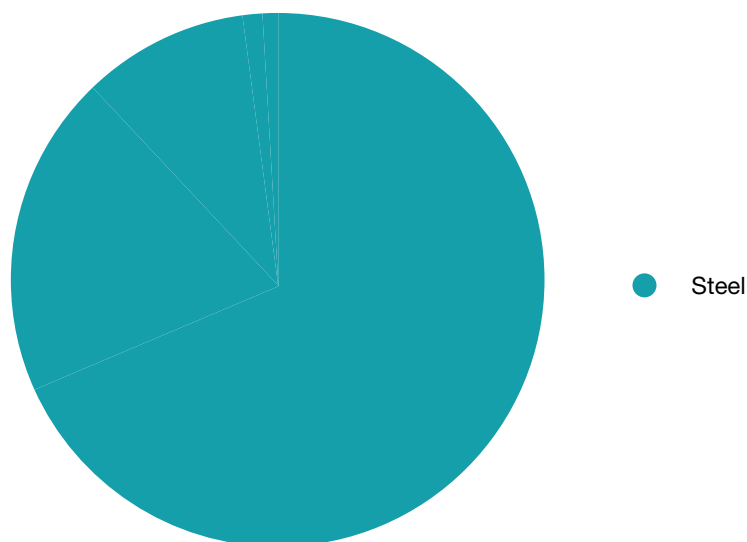
The functional unit is 0.15m<sup>3</sup> of storage capacity for a period of 10 years. As Template has an expected service life of over 10 years, one product is needed to fulfill the functional unit.

0.15m<sup>3</sup>  
storage for  
10 years

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- **Materials Composition**



Material	% by mass	kg. per functional unit (FU)	kg. per storage unit
Steel	100%	12.1	143
Total	100%	12.1	143

*This product material composition represent 79% virgin non-renewable, 21% recycled, and 0% virgin renewable resources.*

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## • Life Cycle Stages



**A cradle-to-grave analysis was conducted for this EPD.** Materials acquisition and pre-processing starts when the material is extracted from nature and ends when the material in component form reaches the gate of the production facility or service delivery operation. As such, it includes transportation between upstream suppliers and Knoll's production facility.

The production stage is a gate-to-gate stage that starts with the product components entering the production facility and ends with the final product, packaged for shipment, leaving the facility. This stage includes manufacturing processes that take place at Knoll, along with the production of packaging materials.

Product distribution and storage are included in the next stage, along with product use and maintenance. This stage can include multiple legs of distribution and storage. The use stage begins when the consumer takes possession of the product, and includes assembly, installation, repair, and maintenance as appropriate.

The end-of-life stage starts when the product is ready for disposal and ends when the product is landfilled, returned to nature, or transformed to be recycled or reused. This stage includes transportation of the used product to treatment or recycling facilities and emissions associated with disposal.

## Life Cycle Assessment Results per functional unit (0.15m<sup>3</sup> of storage capacity)

Inventory Metric	Units	Total
Net fresh water usage*	kg	164
Primary energy demand, total	MJ	597
Primary energy demand, renewable	MJ	79
Primary energy demand, non-renewable	MJ	517

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## • Life Cycle Assessment Results

### Impact Assessment Categories

Impact assessment results are calculated using the TRACI 2.1 methodology (Bare, 2012).

#### Global Warming Potential (100 yr)



#### Global Warming Potential (20 yr)



#### Acidification Potential



#### Eutrophication Potential



#### Ozone Depletion



#### Photochemical Ozone Creation Potential



● Materials Acquisition    ● Production    ● Distribution & Use    ● End of Life

### Life Cycle Assessment Results per functional unit (0.15m<sup>3</sup> of storage capacity)

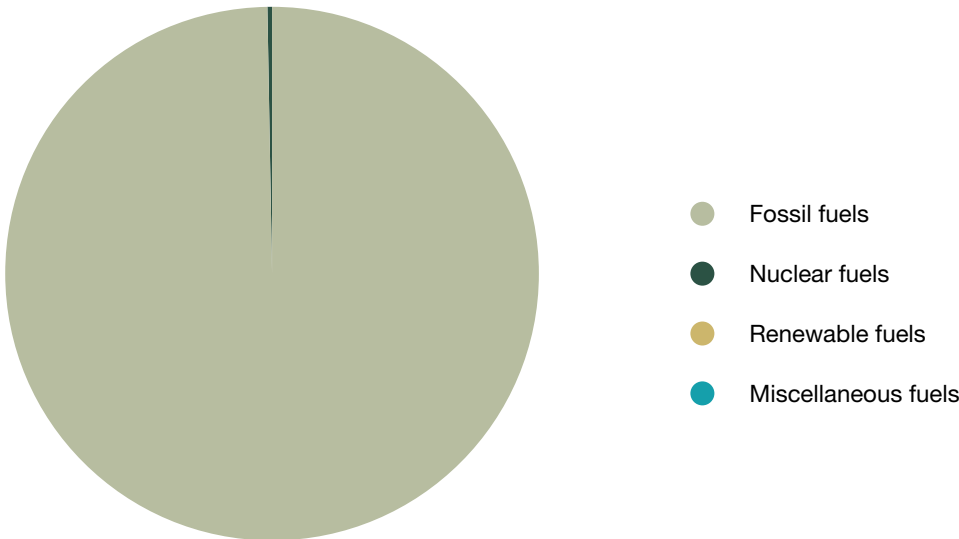
Impact Category	Units	Materials Acquisition	Production	Distribution & Use	End-of-Life	Total
Global warming potential (100 yr)	kg CO <sub>2</sub> eq.	29.7	10.4	4.59	0.498	45.2
Global warming potential (20 yr)	kg CO <sub>2</sub> eq.	33.5	11.4	10.73	0.628	56.3
Acidification potential	kg SO <sub>2</sub> eq.	0.0848	0.0242	0.00863	0.00151	0.119
Eutrophication potential	kg N eq.	0.00547	0.00133	0.000823	0.00011	0.00774
Ozone depletion	kg CFC-11 eq.	1.61E-007	4.9E-009	1.3084E-011	1.32E-012	1.66E-007
Photochemical ozone creation potential	kg O <sub>3</sub> eq.	1.08	0.251	0.1939	0.0278	1.56

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• Other Life Cycle Inventory Data

Life Cycle Inventory Data Per Functional Unit, Fuels

The guiding PCR requires reporting of the inventories, per functional unit (0.15m³ of storage capacity).



Fuels	Units	Total
Fossil fuels	MJ	16.3
Nuclear fuels	MJ	9.66E-005
Renewable fuels	MJ	0
Miscellaneous fuels	MJ	–

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## • Life Cycle Impact Assessment Categories, Emissions and Wastes

### Emissions to Air

Sulphur oxides

=0  
kg

Nitrogen oxides

=0.0513  
kg

Carbon dioxide

=39.3  
kg

Methane

=0.0926  
kg

Nitrous Oxide (laughing gas)

=0.000419  
kg

Carbon monoxide

=0.304  
kg

● Materials Acquisition    ● Production    ● Distribution & Use    ● End of Life

Inventory Metric	Units	Materials Acquisition	Production	Distribution & Use	End-of-Life	Total
Sulphur oxides	kg	0	0	0	0	0
Nitrogen oxides	kg	0.0387	0.01	0.001465	0.00104	0.0513
Carbon dioxide	kg	27.5	9.78	1.513	0.425	39.3
Methane	kg	0.0695	0.0188	0.002067	0.00235	0.0926
Nitrous oxide (laughing gas)	kg	0.000209	0.000173	2.74E-005	9.1E-006	0.000419
Carbon monoxide	kg	0.292	0.0045	0.05482	0.000795	0.304



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## • Life Cycle Impact Assessment Categories, Emissions and Wastes

### Emissions to Fresh Water

Heavy metals



Nitrate



Phosphate



● Materials Acquisition    ● Production    ● Distribution & Use    ● End of Life

Inventory Metric	Units	Materials Acquisition	Production	Distribution & Use	End-of-Life	Total
Heavy metals	kg	0.00174	0.00499	5.79E-005	5.31E-005	0.00684
Nitrate	kg	0.000568	0.000714	1.125E-005	4.48E-005	0.00144
Phosphate	kg	3.53E-005	1.5E-005	1.8138E-005	1.32E-006	6.97E-005

### Waste Management

At End-of-Life, 39.6% (by mass) of the product are assumed to be recycled, based on metal recycling statistics (US EPA, 2015).

Inventory Metric	Units	Materials Acquisition	Production	Distribution & Use	End-of-Life	Total
Waste (deposited) to landfill	kg	0.511	0.045	1.530754	9.76	11.8
Hazardous waste	kg	4.56E-007	6.82E-008	1.754E-007	3.57E-008	7.35E-007

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## • References and Verification

**Bare, J. (2012).** *Tool for the Reduction and Assessment of Chemical and other Environmental Impacts - TRACI v2.1–Intergovernmental Panel on Climate Change (2013). 1pcc Fifth Assessment Report.*

**Intergovernmental Panel on Climate Change (2013).** IPCC Fifth Assessment Report.

**ISO. (2006).** ISO 14044: Environmental management–Life cycle assessment–Requirements and guidelines.

**ISO. (2009).** ISO 14040: Environmental management–Life cycle assessment–Principles and frameworks.

**ISO. (2011).** ISO 14025: Environmental labels and declarations–Type III environmental declarations–Principles and procedures.

**NSF International. (2013).** *BIFMA PCR for Storage: UNCPC 3812.*

**thinkstep. (2017).** *Office Furniture Workspace Products–Background LCA Report in Support of Environmental Product Declarations (EPD)–on behalf of Knoll. Boston: thinkstep Inc.*

**US EPA. (2015).** *Advancing Sustainable Materials Management: 2013 Fact Sheet. Assessing Trends in Material Generation, Recycling and Disposal in the United States.*



**Knoll, Inc.**  
1235 Water Street  
East Greenville, PA 18041  
215 679-7991

Sustainable Design on knoll.com  
sustainability@knoll.com



**thinkstep, Inc.**  
170 Milk St, 3rd floor  
Boston, MA 02109  
617 247-4477

thinkstep.com  
info@thinkstep.com

*This EPD was not written to support comparative assertions. EPDs based on different PCRs or different calculation models may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results due to and not limited to the practitioner's assumptions, the source of the data used in the study, and the software tool used to conduct the study.*