

# Environmental Product Declaration

## ReGeneration by Knoll®

Work Chair



Innovative in its simplicity, ReGeneration minimizes materials and components. The straightforward design leverages flexible and durable materials that respond to your movements, providing comfort and ergonomic support throughout the days without interrupting your work flow.

**Recycled Content**  
10% Post-consumer  
recycled content

**Functional Unit**  
One unit of seating to seat  
one individual, maintained  
for a period of 10 years.  
ReGeneration by Knoll  
has an expected service  
life of over 10 years, one  
product is needed to fulfill  
the functional unit. Analysis  
was conducted for a  
ReGeneration chair with  
high-end specifications.

Shown above: ReGeneration by Knoll work chair with Flex Net back, high-performance arms, polished aluminum base, and hard wheel castors. Manufactured in East Greenville, PA.

# Environmental Product Declaration

## ReGeneration by Knoll®

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  
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<b>Program Operator</b>	NSF Certification, LLC
<b>Declaration Holder</b>	Knoll
<b>Declaration Number</b>	EPD10347
<b>Declared Product</b>	ReGeneration by Knoll®
<b>Reference PCR</b>	NSF International-BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814
<b>Date of Issue</b>	August 9, 2018
<b>Period of Validity</b>	5 Years (Expiration: August 9, 2023)
<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

<b>The PCR review was conducted by</b>	PCR Review Panel Chair: Thomas P. Gloria ncss@nsf.org
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**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

## ReGeneration by Knoll®

• Reference Product Description

Seating 1

Product Category

Occupants Supported  
by Product

9.7 × 15-17 × 11.4 cm  
(24.6" × 38.1-43.3" × 29")

Product Dimensions  
W × H × D

11.1 kg  
(24.6 lbs.)

10%

Product Mass

Post-Consumer  
Recycled Content

Web backing; high performance arm option  
(standard: height adjustable); polished aluminum  
base (standard; plastic); hard wheel casters

Additional features

• Functional Unit

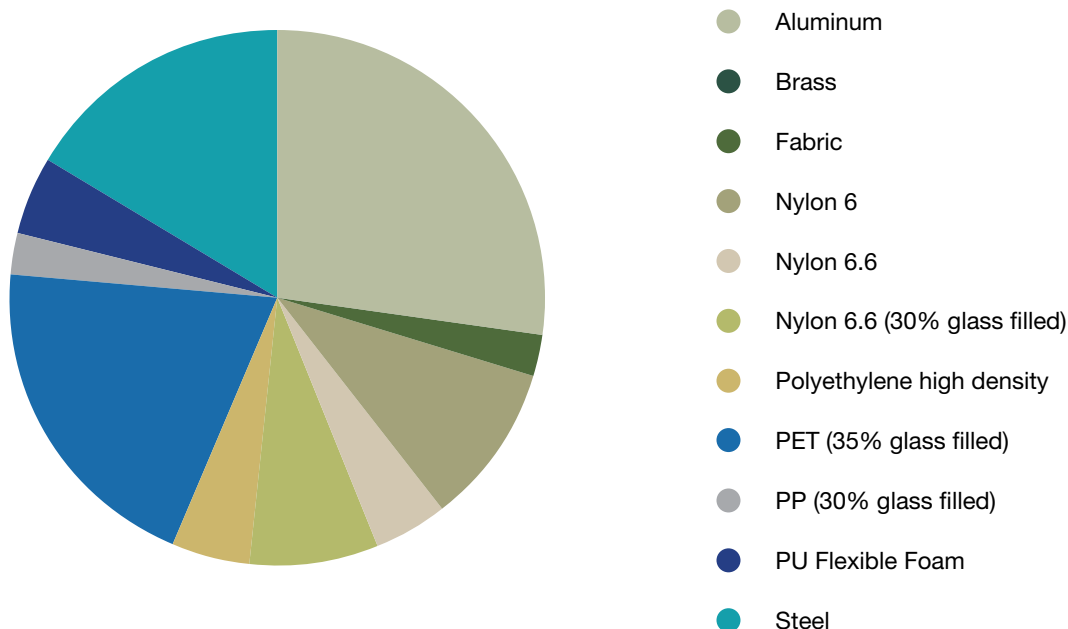
The functional unit is one unit of seating to seat one individual, maintained for a period of 10 years. As ReGeneration by Knoll has an expected service life of over 10 years, one product is needed to fulfill the functional unit. The analysis was conducted for a ReGeneration chair with high-end specifications.

1 seat  
per  
1 individual

# Environmental Product Declaration

## ReGeneration by Knoll®

• **Materials Composition**



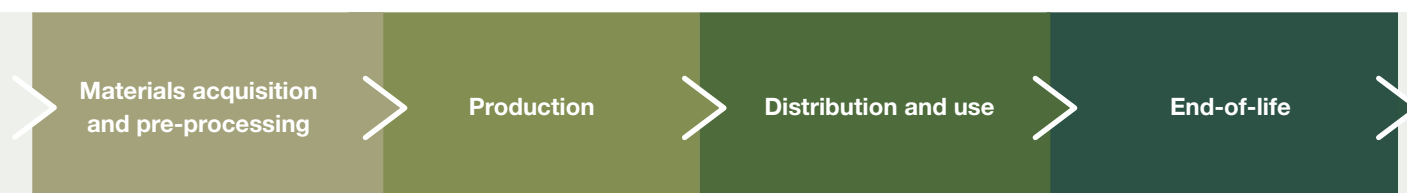
Material	% by mass	kg per chair	lbs. per chair
Aluminum	27.4	3.05	6.74
Brass	0.0163	0.00181	0.004
Fabric	2.36	0.263	0.579
Nylon 6	9.68	1.08	2.38
Nylon 6.6	4.55	0.507	1.12
Nylon 6.6 (30% glass filled)	7.67	0.855	1.89
Polyethylene High Density	4.8	0.535	1.18
PET (35% glass filled)	20	2.23	4.92
PP (30% glass filled)	2.58	0.288	0.634
PU flexible foam	4.71	0.525	1.16
Steel	16.2	1.81	3.99

Total % may not equal 100% due to rounding errors

# Environmental Product Declaration

## ReGeneration by Knoll®

- **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 (1 chair)

Inventory Metric	Units	Total
Net fresh water usage*	kg	818
Primary energy demand, total	MJ	1,615
Primary energy demand, renewable	MJ	271
Primary energy demand, non-renewable	MJ	1,344

\*Specified, per the PCR: Water usage from electricity generation is included

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## ReGeneration by Knoll®

### Life Cycle Assessment Results

#### Impact Assessment Categories

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

#### Global Warming Potential



#### 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 (1 chair)

Impact Category	Units	Materials Acquisition	Production	Distribution & Use	End-of-Life	Total
Global warming potential	kg CO <sub>2</sub> eq.	71.2	15	1.5	0.61	88.3
Acidification potential	kg SO <sub>2</sub> eq.	0.285	0.0353	0.00719	0.00218	0.33
Eutrophication potential	kg N eq.	0.0154	0.00319	0.0006	0.000667	0.0198
Ozone depletion	kg CFC-11 eq.	1.28E-008	6.26E-009	5.06E-014	1.36E-013	1.91E-008
Photochemical ozone creation potential	kg O <sub>3</sub> eq.	3.32	0.428	0.162	0.0413	3.96

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## ReGeneration by Knoll®

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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–User's Manual.* Washington, DC: U.S. EPA.

**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. (2014).** *BIFMA PCR for Seating: UNCPC 3811–Version 3.*

**thinkstep. (2018).** *Seating Products-Background LCA Report in Support of Environmental Product Declarations (EPD).*



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*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.*