

Environmental Product Declaration

Reff Profiles™ Workstation

Private Office Workstation



Borrowing from the functionalist vision of the modernist masters, Reff Profiles delivers a progressive and efficient architectural presence for private offices, administrative areas and open plan environments. Building on a long history, Reff Profiles continues its tradition of wood excellence and design flexibility—an important criterion for planning the future workplace.

Recycled Content

3% Post-consumer recycled content

85% Post-industrial recycled content

Functional Unit

The functional unit is one square meter (1m²) of workspace for a period of 10 years.

As Reff Profiles has an expected service life of over 10 years, one product is needed to fulfill the functional unit. The analysis was conducted for a Reff Profiles™ private office system with veneer finish, chosen based on a typical rendering of the office system.

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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

Program Operator	NSF Certification, LLC
Declaration Holder	Knoll
Declaration Number	EPD10340
Declared Product	Reff Profiles™ Private Office Workstation
Reference PCR	NSF International-BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814
Date of Issue	December 14, 2017
Period of Validity	5 Years (Expiration: December 14, 2022)
Contents of the Declaration	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
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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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• Reference Product Description

Desking

1

Product Category

Occupants Supported
by Product

3.8 m²

Physical Floor Space
Area

2.8 m²

Worksurface Area

2 m³

Volume of Storage

116 kg/m²

Product mass per 1m² of
Work Space Area

85%

Post-Industrial
Recycled Content

3%

Post-Consumer
Recycled Content

Two worksurfaces, overhead cabinets, two book cases,
and one large pedestal for storage options

Additional Features

• Functional Unit

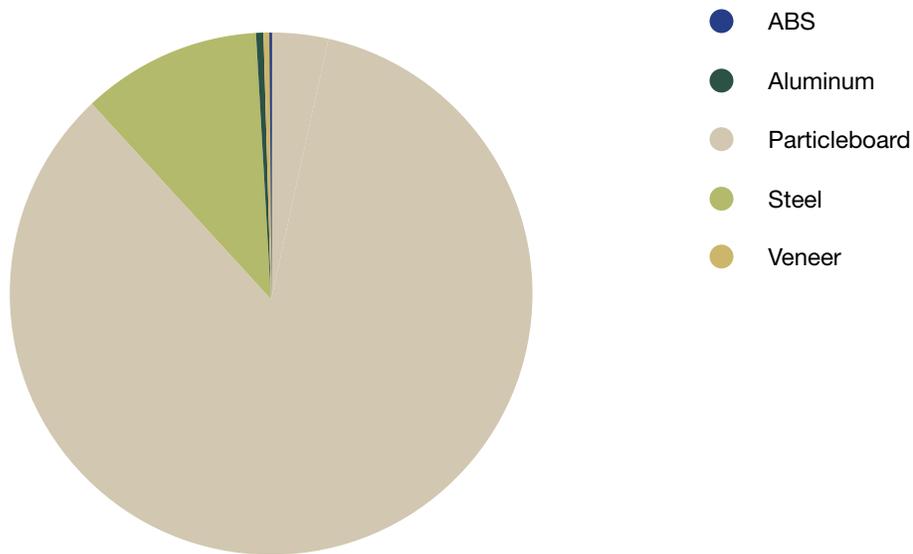
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1 square meter
of workspace
for a period of
10 years

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• **Materials Composition**

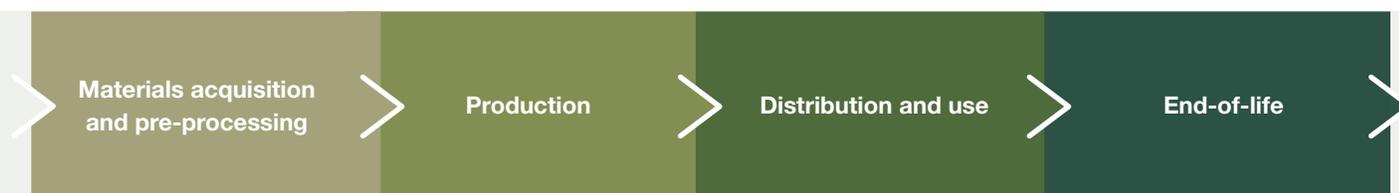


Material	% by mass	kg per m ² floor space	kg. per workstation
ABS	0.0268	0.031	0.118
Aluminum	0.451	0.523	1.99
Particleboard	88.2	102	389
Steel	10.9	12.6	48.1
Veneer	0.389	0.451	1.71
Total	100%	116	440.38

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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. For products with electrical components, use stage electricity consumption is also considered.

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 (1m² of floorspace)

Inventory Metric	Units	Total
Net fresh water usage*	kg	2,279
Primary energy demand, total	MJ	6,785
Primary energy demand, renewable	MJ	3,582
Primary energy demand, non-renewable	MJ	3,204

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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 (1m² of workspace)

Impact Category	Units	Materials Acquisition	Production	Distribution & Use	End-of-Life	Total
Global warming potential (100 yr)	kg CO ₂ eq.	90.7	77.7	21.81	163	353
Global warming potential (20 yr)	kg CO ₂ eq.	106	86.2	41.2	473	707
Acidification potential	kg SO ₂ eq.	0.719	0.235	0.0435	0.182	1.2
Eutrophication potential	kg N eq.	0.0291	0.0114	0.00391	0.0604	0.107
Ozone depletion	kg CFC-11 eq.	6.17E-007	6.29E-008	6.89E-011	2.28E-11	6.8E-007
Photochemical ozone creation potential	kg O ₃ eq.	7.51	2.88	0.982	0.0804	13.2

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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.

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

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

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



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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.