Environmental Product Declaration

AutoStrada®
AS-1 & AS-4
Open Plan Workstation

As the architectural foundation of the AS-1 open office landscape, the AutoStrada Spine Wall serves as the central structure to which perpendicular screens and worksurfaces attach, dividing space and defining individual workstations. With all power and data contained in the spine, repositioning perpendiculars requires no rewiring, making changes in workstation configuration fast and easy.

AS-4 is ideal for the changing workplace—enabling increased team-based activity and communication while meeting the need for both shared and individual workspaces. AuduStrada worksurfaces combine to form continuous benches for virtually any number of users, eliminating barriers to teamwork in the open plan. Individual workspaces can be defined by mobile pedestals or lateral file “returns.”

Recycled Content
10% Post-consumer recycled content
27% Post-industrial recycled content

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

As AutoStrada has an expected service life of over 10 years, one product is needed to fulfill the functional unit. The analysis was conducted for an AutoStrada open table desking 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.

Program Operator
NSF Certification, LLC

Declaration Holder
Knoll

Declaration Number
EPD10336

Declared Product
AutoStrada® Workstation AS-1 & AS-4

Reference PCR
NSF International-BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814

Date of Issue
December 13, 2017

Period of Validity
5 Years (Expiration: December 13, 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

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

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

This EPD conforms with ISO 21930-2007
Date of last revision: March 2021
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• Reference Product Description

Desking

<table>
<thead>
<tr>
<th>Product Category</th>
<th>Occupants Supported by Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

6.5 m²

Physical Floor Space Area

5.6 m²

Worksurface Area

.38 m³

Volume of Storage

66.6 kg/m²

Product mass per 1m² of Work Space Area

27%

Post-Industrial Recycled Content

10%

Post-Consumer Recycled Content

4 linked desks with pedestal storage for each desk

Additional features

• Functional Unit

The functional unit is one square meter (1m²) of workspace for a period of 10 years. As AutoStrada has an expected service life of over 10 years, one product is needed to fulfill the functional unit. Analysis was conducted for an AutoStrada open table desking system with veneer finish, chosen based on a typical rendering of the office system.
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• Materials Composition

<table>
<thead>
<tr>
<th>Material</th>
<th>% by mass</th>
<th>kg per m² floor space</th>
<th>kg. per workstation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>0.306</td>
<td>0.204</td>
<td>1.32</td>
</tr>
<tr>
<td>Aluminum</td>
<td>22.9</td>
<td>15.3</td>
<td>99.3</td>
</tr>
<tr>
<td>Fabric</td>
<td>0.537</td>
<td>0.357</td>
<td>2.32</td>
</tr>
<tr>
<td>Laminate</td>
<td>2.12</td>
<td>1.41</td>
<td>9.19</td>
</tr>
<tr>
<td>Particleboard</td>
<td>25.6</td>
<td>17</td>
<td>111</td>
</tr>
<tr>
<td>Steel</td>
<td>48.5</td>
<td>32.3</td>
<td>210</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>66.6</strong></td>
<td><strong>433.13</strong></td>
</tr>
</tbody>
</table>

Total % may not equal 100% due to rounding errors
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Life Cycle Stages

- Life Cycle Stages

Materials acquisition and pre-processing

Production

Distribution and use

End-of-life

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)

<table>
<thead>
<tr>
<th>Inventory Metric</th>
<th>Units</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net fresh water usage*</td>
<td>kg</td>
<td>2,876</td>
</tr>
<tr>
<td>Primary energy demand, total</td>
<td>MJ</td>
<td>8,154</td>
</tr>
<tr>
<td>Primary energy demand, renewable</td>
<td>MJ</td>
<td>1,464</td>
</tr>
<tr>
<td>Primary energy demand, non-renewable</td>
<td>MJ</td>
<td>6,690</td>
</tr>
</tbody>
</table>
### Life Cycle Assessment Results

**Impact Assessment Categories**

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

<table>
<thead>
<tr>
<th>Impact Category</th>
<th>Units</th>
<th>Materials Acquisition</th>
<th>Production</th>
<th>Distribution &amp; Use</th>
<th>End-of-Life</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global warming potential (100 yr)</td>
<td>kg CO₂ eq.</td>
<td>252</td>
<td>206</td>
<td>12.63</td>
<td>28.9</td>
<td>500</td>
</tr>
<tr>
<td>Global warming potential (20 yr)</td>
<td>kg CO₂ eq.</td>
<td>282</td>
<td>230</td>
<td>23.97</td>
<td>81</td>
<td>617</td>
</tr>
<tr>
<td>Acidification potential</td>
<td>kg SO₂ eq.</td>
<td>1.22</td>
<td>0.388</td>
<td>0.0384</td>
<td>0.0359</td>
<td>1.68</td>
</tr>
<tr>
<td>Eutrophication potential</td>
<td>kg N eq.</td>
<td>0.0526</td>
<td>0.0216</td>
<td>0.003335</td>
<td>0.0106</td>
<td>0.0881</td>
</tr>
<tr>
<td>Ozone depletion</td>
<td>kg CFC-11 eq.</td>
<td>4.44E-006</td>
<td>8.1E-008</td>
<td>6.228E-011</td>
<td>8.78E-012</td>
<td>4.52E-006</td>
</tr>
<tr>
<td>Photochemical ozone creation potential</td>
<td>kg O₃ eq.</td>
<td>14</td>
<td>4.93</td>
<td>0.868</td>
<td>0.32</td>
<td>20.2</td>
</tr>
</tbody>
</table>

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**References and Verification**


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.