



## Environmental Product Declaration Mimeo® Seating

### Models

Task chairs and stools with fixed arms, height-adjustable arms, fully-adjustable arms, and without arms.

### Product Description

Mimeo supports the changing workplace by enabling unrestricted movement and cross-functional interaction throughout the day. Its IntelliForm back technology and advanced materiality embrace the user, providing consistent contact for personalized comfort. Appropriately scaled, Mimeo can be easily transported and visually integrated into multiple spaces. With its distinctive style and dynamic support, Mimeo delivers the spirit of design and performance that moves companies forward.

### Functional Unit

One unit of seating to seat one individual, maintained for a 10 year period. The Allsteel Mimeo chair passes the ANSI/BIFMA X5.1 test, demonstrating a minimum expected lifetime of 10 years, and therefore one chair meets the functional unit.

### Manufacturer

At Allsteel, we demystify the office planning process by helping our customers align their workplace strategy with their business strategy. With an accessible team and an adaptable portfolio of systems, seating, casegoods, tables, collaborative furniture, and movable walls, we address our customers' needs for today and tomorrow.

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### EPD Program Operator

SCS Global Services  
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### Product Category Rule

BIFMA PCR for Seating (v3): UNCPC 3811,  
September 30, 2014.

### EPD Number and Period of Validity

SCS-EPD-04248  
November 18, 2016 - November 17, 2021

#### Disclaimers

**Scope of Results Reported:** The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.

**Accuracy of Results:** Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.

**Comparability:** The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. This EPD is augmented with information from draft LEO-SCS-002 standard, which is intended to promote comparison between EPDs. 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 specifics of the product modeled.

# Allsteel®

## Product Specifications

Mimeo's lightweight and intuitive design adapts to any type of work. Experience immediate and lasting comfort for focused work, as well as in project rooms and open desking areas where activities change day to day or hour to hour. Mimeo is ideal for highly active and collaborative workstyles and enhances every space.

Mimeo, assembled at the Allsteel Muscatine, Iowa manufacturing facility, is a general purpose office chair constructed from a variety of materials including steel, plastic, nylon and polyurethane foam with upholstery covering. Mimeo is available with a variety of options for color, base (stool or casters), and arm configurations. Mimeo passes the ANSI/BIFMA X5.1 tests, demonstrating a minimum expected lifetime of 10 years under normal use conditions.

## Materials Composition

Table 1. Material composition of each Mimeo. Results are shown in kg per functional unit, and as a percent of the total in parenthesis.

Material	Material Type	Material Resource	Stool w/ Ht.-Adj. Arms	Stool w/ Full- ly-Adj. Arms	Stool w/ Fixed Arms	Task Chair w/ Ht.-Adj. Arms	Task Chair w/ Full- ly-Adj. Arms	Task Chair w/ Fixed Arms	Task Chair w/o Arms
ABS	Plastic	Virgin non-renewable	0.91 (5.6%)	0.91 (5.5%)	0.91 (5.8%)	0.91 (6.4%)	0.91 (6.2%)	0.91 (6.2%)	0.91 (6.6%)
Chrome-Silicon Spring Wire	Steel	Virgin non-renewable	0.30 (1.9%)	0.30 (1.8%)	0.30 (1.9%)	0.30 (2.1%)	0.30 (2.1%)	0.30 (2.2%)	0.30 (2.4%)
EPDM - synthetic rubber	Plastic	Virgin non-renewable	--	3.0x10 <sup>-3</sup> (0.02%)	--	--	3.0x10 <sup>-3</sup> (0.0%)	--	--
Fabric	Plastic	Virgin non-renewable	0.28 (1.8%)	0.28 (1.7%)	0.28 (1.8%)	0.28 (2.0%)	0.28 (1.9%)	0.28 (2.1%)	0.28 (2.2%)
Nylon 6,6; Glass filled	Plastic	Virgin non-renewable	6.2 (39%)	6.4 (39%)	5.8 (38%)	6.8 (48%)	7.0 (48%)	6.4 (47%)	5.6 (44%)
Polypropylene; glass-filled	Plastic	Virgin non-renewable	0.24 (1.5%)	0.24 (1.5%)	0.24 (1.6%)	0.24 (1.7%)	0.24 (1.7%)	0.24 (1.8%)	0.24 (1.9%)
Nylon 6,6	Plastic	Virgin non-renewable	0.62 (3.9%)	0.64 (3.9%)	0.42 (2.7%)	0.62 (4.4%)	0.64 (4.4%)	0.42 (3.1%)	0.42 (3.3%)
Nylon	Plastic	Virgin non-renewable	0.45 (2.8%)	0.44 (2.7%)	0.45 (2.9%)	0.45 (3.1%)	0.45 (3.1%)	0.45 (3.3%)	0.45 (3.5%)
Polypropylene	Steel	Virgin non-renewable	0.99 (6.1%)	1.0 (6.3%)	1.0 (6.7%)	0.99 (7.0%)	1.0 (7.2%)	1.0 (7.6%)	0.97 (7.6%)
Urethane Foam	Plastic	Virgin non-renewable	0.47 (2.9%)	0.47 (2.9%)	0.47 (3.0%)	0.47 (3.3%)	0.47 (3.2%)	0.47 (3.4%)	0.47 (3.5%)
Steel	Steel	Virgin non-renewable	5.7 (35%)	5.7 (35%)	5.6 (36%)	3.2 (22%)	3.2 (22%)	3.2 (23%)	3.2 (25%)
<b>Total</b>			<b>16 (100%)</b>	<b>16 (100%)</b>	<b>16 (100%)</b>	<b>14 (100%)</b>	<b>15 (100%)</b>	<b>14 (100%)</b>	<b>13 (100%)</b>
Percentage of post-consumer recycled content			39%	38%	38%	40%	39%	39%	36%
Percentage of pre-consumer recycled content			3.3%	3.3%	3.4%	1.0%	2.5%	2.7%	2.8%

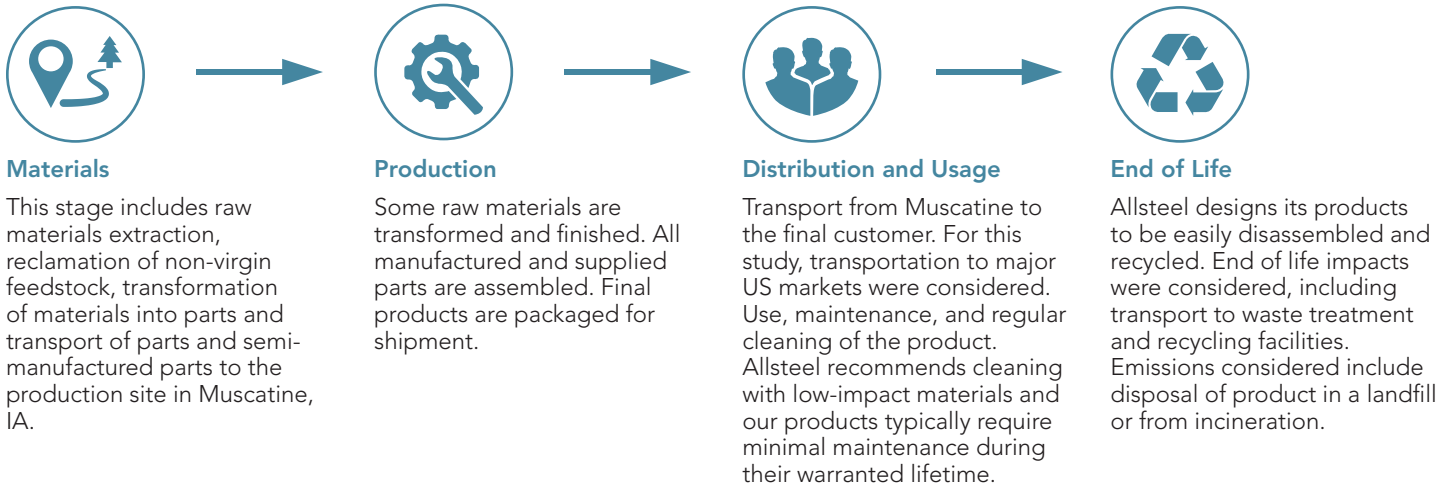
Table 2. Packaging materials used for Mimeo.

Material	kg
Plastics (LDPE packaging film/EPS)	0.27
Cardboard	1.48

## Life Cycle Assessment Stages

Figure 1 below is a representation of the life cycle of Mimeo. The system boundary is cradle-to-grave and includes resource extraction and processing, product manufacture and assembly, distribution/transport, use and maintenance, and end-of-life.

Figure 1. Life cycle diagram for a Mimeo unit. Excluded from this study are processes related to personnel activity and production of capital goods, infrastructure, manufacturing equipment, etc.



## Life Cycle Inventory

The resource use and emissions from each step of the product life cycle are summed to obtain the life cycle inventory results. The Life Cycle Inventory flows for Mimeo are shown in Table 3. Table 4 includes equivalency factors that were determined for the purpose of communicating critical environmental impacts in simplified terms for better understanding.

Table 3. Aggregated inventory flows for Mimeo. Results are shown per functional unit.

Parameters Prescribed by BIFMA PCR	Units	Total
Water Use	kg	3,300
Primary Energy Demand	MJ	1,500
Non-renewable, fossil fuels	MJ	1,200
Non-renewable, nuclear fuels	MJ	200
Renewable fuels	MJ	100
Secondary Energy	MJ	0.053

Table 4. Equivalency Factors for select aggregated inventory results for Mimeo.

Category Indicator	Life Cycle Assessment results for 1 chair, maintained for 10 years	Basics of Calculation	1 chair, maintained for 10 years
Net Water Use	3.3 m <sup>3</sup>	Number of cycles run in a dishwasher*	75
Primary Energy Demand	1,500 MJ	Number of days operating a refrigerator*	81

\*Calculation includes upstream resource use for equipment operation.

## Life Cycle Impact Assessment

Impact category indicators are calculated using the TRACI 2.1 characterization methods, including acidification potential, eutrophication potential, smog potential, ozone depletion potential, and global warming potential based on IPCC 2013, in accordance with the BIFMA PCR.

Table 5. Average life cycle impact assessment results for Mimeo. Results are shown per functional unit.






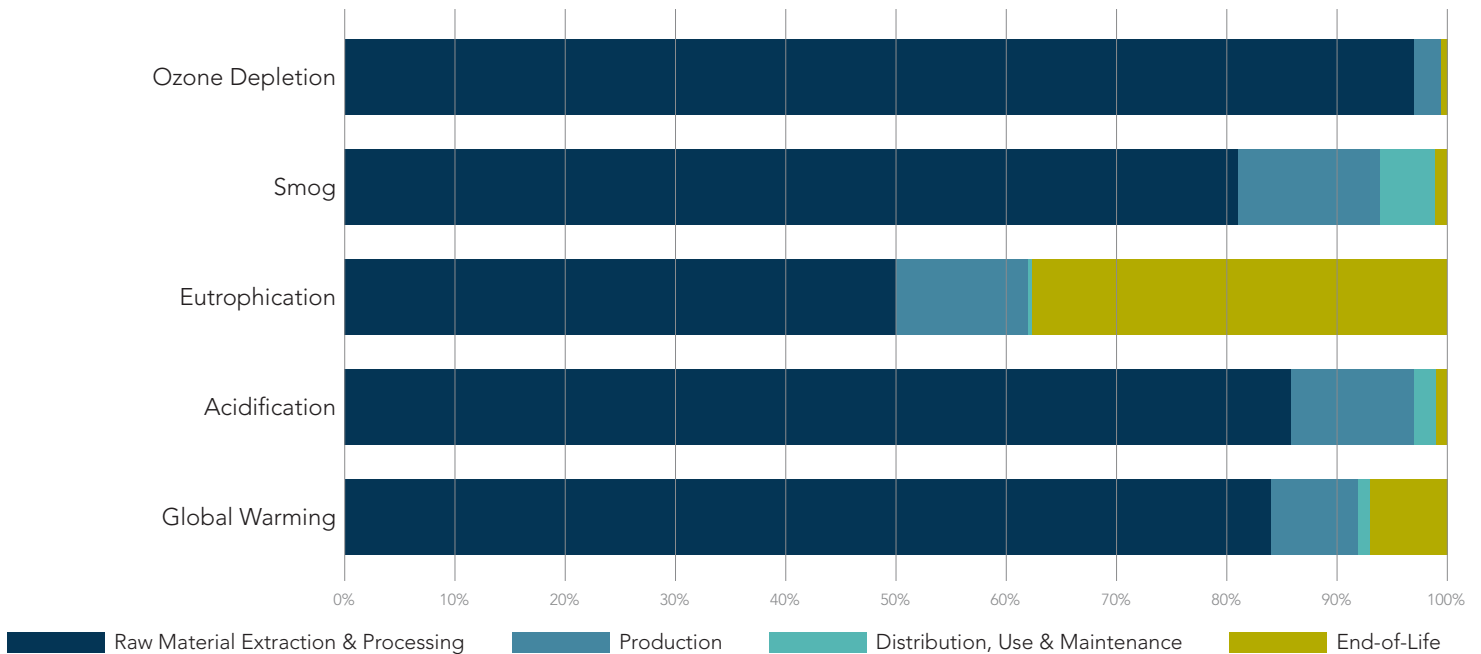
Impact Category	Units	Raw Material Extraction & Processing	Production (Manufacturing & Assembly)	Distribution, Use & Maintenance	End-of-Life	Total
 Global Warming Potential – 100 year	kg CO <sub>2</sub> eq	75	7.3	1.3	5.6	89
 Acidification Potential	kg CO <sub>2</sub> eq	0.27	3.6 x 10 <sup>-2</sup>	6.8 x 10 <sup>-3</sup>	2.4 x 10 <sup>-3</sup>	0.32
 Eutrophication Potential	kg N eq	0.14	3.1 x 10 <sup>-2</sup>	7.6 x 10 <sup>-4</sup>	0.10	0.27
 Smog	kg O <sub>3</sub> eq	3.5	0.55	0.21	6.7 x 10 <sup>-2</sup>	4.3
 Ozone Depletion Potential	kg CFC-11 eq	9.7 x 10 <sup>-6</sup>	2.6 x 10 <sup>-7</sup>	4.5 x 10 <sup>-9</sup>	5.0 x 10 <sup>-8</sup>	1.0 x 10 <sup>-5</sup>

Figure 2. Contribution analysis graph representing % contribution to each impact category indicator by life cycle phase.

### Life Cycle Impacts of Mimeo



## Life Cycle Impact Assessment (continued)

Additional life cycle impact results are reported in Table 6 below as optional parameters of concern. These impacts are calculated using the LEO-SCS-002 framework, which augments the specified impact categories and method TRACI 2.1, identified by the NSF PCR.

Table 6. Average life cycle impact assessment results for Mimeo according to LEO-SCS-002 standard. Results are shown per functional unit.

Impact Category (LEO SCS-002 Parameters)	Unit	Total
Global Climate Change	kg CO <sub>2</sub> eq	91
Arctic Climate Change	kg CO <sub>2</sub> eq	110
Ocean Acidification	kg H <sub>2</sub> CO <sub>3</sub> eq	130
Energy Resource Depletion	MJ eq	490

Results for select impact category indicators are translated to the number of miles driven in a typical passenger vehicle, and are provided to help customers interpret the scale of potential environmental impact attributed to the product.


Table 7. Translation of results to familiar activities for select life cycle assessment results Mimeo. Results are shown per functional unit.

Category Indicator	Life Cycle Impact Assessment results for 1 chair, maintained for 10 years	Basis of Equivalency Factor	1 chair, maintained for 10 years
Global Climate Change (LEO-SCS-002)	91 kg CO <sub>2</sub> eq	Number of miles driven in a typical passenger vehicle	204 miles
Energy Resource Depletion (LEO-SCS-002)	490 MJ eq	Number of days operating a refrigerator	26 days

## Additional Environmental Information

Allsteel makes it a priority to design product and implement processes that reduce our collective impact on the environment. Allsteel is proud to support sustainable initiatives in the building industry as a member of the U.S. Green Building Council (USGBC).

Mimeo is level<sup>®</sup> 2 certified to the ANSI/BIFMA e3 Furniture Sustainability Standard and SCS Indoor Advantage<sup>™</sup> Gold certified for indoor air quality. Mimeo has the ability to contribute to several credits in the LEED<sup>®</sup> green building program and the WELL Building Standard<sup>®</sup>.

Approved November 18, 2016   Valid until November 17, 2021	
PCR Review was conducted by	Thomas P. Gloria, PhD, Industrial Ecology Consultants t.gloria@industrial-ecology.com
Independent verification of the declaration and data, according to ISO 14025-2006	<input type="checkbox"/> Internal <input checked="" type="checkbox"/> External
Third party verifier	 _____ Tom Gloria, PhD, Industrial Ecology Consultants

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Allsteel supports green initiatives in the contract furniture industry as a member of the U.S. Green Building Council. Stride is an SCS Indoor Advantage™ Gold and level® 2 certified product.

