

HAWORTH®



Zody®

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Product

Zody® Task, Model: SZT-20-724MA1 3A-18 MA-001 TR-00F TR-F

Functional Unit

One unit of seating to seat one individual, maintained for a 10 year period

EPD Number and Period of Validity

Beginning Date: September 27, 2016 – End Date: September 26, 2021
SCS-EPD-04182

Product Category Rule

BIFMA PCR for Seating: UNCPC 3811, Version 3

Program Operator

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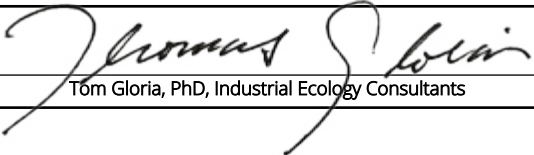
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|---|---|
| <p>Disclaimers: This Environmental Product Declaration (EPD) conforms to ISO 14025, 14040, and ISO 14044.</p> <p>Scope of Results Reported: The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental 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.</p> <p>Accuracy of Results: Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.</p> <p>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. 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.</p> | |
| PCR review, was conducted by | Tom Gloria, PhD, Industrial Ecology Consultants (Review Chair) |
| Approved: September 27, 2016 Valid until: September 26, 2021 | |
| 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 |

Haworth is a sustainable corporation. We engage our employees in more sustainable practices, we initiate and use processes that are neutral or improve our environment, and we utilize our resources in ways that create adaptable and sustainable workspace solutions for our customers. We do all of this globally to protect and restore our environment, create economic value, and support and strengthen our communities.

Haworth's commitment to sustainability and environmentally sound practices stretch back decades, yet is stronger than ever. For years, the economy promoted a linear value stream that focused on products and services with short, linear life spans. It is our goal to bend this paradigm into a circular value stream that includes products and services that are a part of a sustainable economy. Shifting to this holistic approach requires sustainable products and sourcing, the sharing of knowledge and services, continuous support and engagement of the community, and the accountability of our global operations.

It has been our ability to support the pursuit of environmental excellence at this level—beyond our products and throughout the entire value stream—that has allowed us to bring the most value as a partner in our customers' success.

PRODUCT DESCRIPTION

Zody Task is manufactured in a zero landfill, ISO 14001 certified facility in Bruce, MS. Zody Task is Greenguard and BIFMA level™ 3 certified, and can be easily disassembled and recycled at the end of its useful life.^[6] The product of extensive research and development, only Zody offers asymmetrical lumbar adjustment, providing user-support on each side of the lower back. Zody Task contains 40% recycled content and up to 93% recyclable materials. Also refer to Zody Task Product Environmental Data Sheet.^[7] The product has been evaluated down to 100 ppm and is free of PVC, PBDEs, brominated or halogenated flame retardants, persistent organic pollutants, chlorofluorocarbons, and phthalates.

Zody Task model *SZT-20-724MA1 3A-18 MA-001 TR-00F TR-F* includes a mesh back, black trim, upholstered seat, lumbar adjustment, polished aluminum base and 4D arms and has a total weight of 45.4 lbs (20.6 kg).

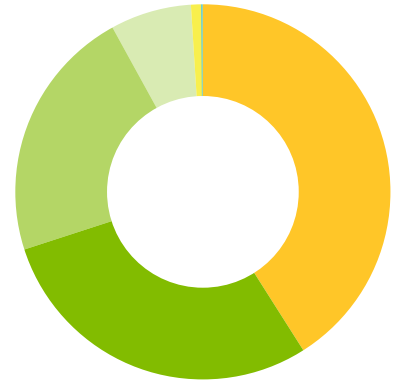
Zody Task passed the BIFMA x5.1 test, demonstrating a minimum expected lifetime of 10 years under normal use conditions.



MATERIAL COMPOSITION



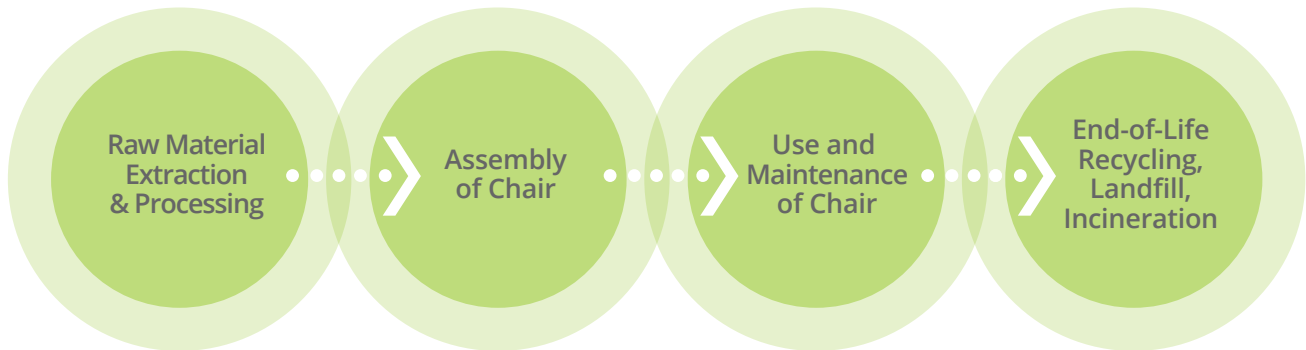
| | | |
|-----------------------------|-------|--|
| Steel (8.43 kg) | 41% | |
| Plastic (5.97 kg) | 29% | |
| Aluminum (4.50 kg) | 22% | |
| Polyurethane Foam (1.47 kg) | 7% | |
| Nylon Fabric (0.20 kg) | 1% | |
| Zinc (0.08 kg) | 0.4% | |
| Rubber (0.01 kg) | 0.04% | |
| Lubricant (0.003 kg) | 0.02% | |



Total product weight is 20.6 kg. Note that steel and aluminum are classified as recycled, virgin non-renewable resources. The remaining materials in Zody are classified as virgin non-renewable resources.

LIFE CYCLE ASSESSMENT OVERVIEW

A Life Cycle Assessment (LCA) was conducted to evaluate the environmental performance of the Zody Task Chair. LCA is an assessment of the environmental and human health impacts of a product over its entire life cycle, from raw material extraction through manufacturing, use, and end-of-life.



Raw Material Extraction and Processing: This stage includes the extraction of all raw virgin materials and reclamation of non-virgin feedstock. Resource use and emissions associated with both extraction and processing of the raw materials and component manufacture are included. This stage also includes impacts associated with the transport of the chair components and product packaging materials to the manufacturing facility (upstream transport).

Manufacture of Chair: This stage includes all the relevant manufacturing processes and flows, including the impacts from energy use and emissions at the manufacturing facility. Production of capital goods, infrastructure, manufacturing equipment, and personnel-related activities are not included.

Distribution, Use, and Maintenance of Chair: This stage includes delivery of the chair, including packaging, from the manufacturing facility to the point of use (downstream transportation) as well as maintenance of the chair.

End-of-Life: The end-of-life stage includes transport of the chair components to recycling centers and waste treatment facilities. This stage includes the emissions associated with the degradation of material in a landfill or from burning in an incinerator. Disposal of packaging is included in this stage.

LIFE CYCLE INVENTORY AND ENVIRONMENTAL PARAMETER RESULTS

The resource use and emissions from each step of the product life cycle are summed to obtain the life cycle inventory results. Table 3 shows inventory categories for energy and water consumption.

Table 3. Inventory categories for energy and water consumption. Results shown per functional unit.

| Parameter | Amount per Chair | Units |
|-------------------------------------|------------------|-------|
| Primary Energy Demand | 2,200 | MJ |
| Non-Renewable Energy, Fossil Fuels | 1,900 | MJ |
| Non-Renewable Energy, Nuclear | 110 | MJ |
| Renewable Energy | 340 | MJ |
| Miscellaneous Fuels ¹ | N/A | MJ |
| Freshwater Consumption ² | 740 | kg |

¹ Total electricity and heat from waste.

² Water usage from electricity generation is included.

LIFE CYCLE IMPACT ASSESSMENT RESULTS

Life cycle impact assessment is the process of converting the life cycle inventory results into a representation of environmental and human health impacts. For example, emissions of carbon dioxide, methane, and nitrous oxide (inventory data) together contribute to climate change (impact assessment). The impact assessment for the EPD is conducted in accordance with the requirements of the Product Category Rule (PCR).

Impact category indicators were estimated using TRACI v2.1 characterization method, including Global Warming Potential (100 year time horizon), Acidification Potential, Eutrophication Potential, Photochemical oxidation creation potential, and Ozone Depletion Potential.

Table 4. Life cycle impact assessment results for the Zody Task chair. Results shown per functional unit. Results may not sum to the total due to rounding.

| Impact Category | Units | Total | Material Acquisition and Pre-processing | Production | Distribution, Use, and Maintenance | End-of-life |
|---|-----------------------|----------------------|---|----------------------------|------------------------------------|-----------------------------|
| Global Warming Potential | kg CO ₂ eq | 130 | 120 (88%) | 8.1 (6.0%) | 3.4 (2.6%) | 4.1 (3.1%) |
| Acidification Potential | kg SO ₂ eq | 0.55 | 0.48 (87%) | 0.046 (8.3%) | 0.017 (3.0%) | 7.8x10 ⁻³ (1.4%) |
| Eutrophication Potential | kg N eq | 0.064 | 3.8x10 ⁻² (60%) | 1.7x10 ⁻² (27%) | 1.5x10 ⁻³ (2.4%) | 6.8x10 ⁻³ (11%) |
| Ozone Depletion Potential | kg CFC-11 eq | 1.2x10 ⁻⁶ | 6.8x10 ⁻⁷ (58%) | 4.8x10 ⁻⁷ (40%) | 3.0x10 ⁻¹¹ (0.003%) | 2.2x10 ⁻⁸ (1.9%) |
| Photochemical Ozone Creation Potential (Smog) | kg O ₃ eq | 7.3 | 6.1 (84%) | 0.54 (7.4%) | 0.53 (7.3%) | 0.091 (1.3%) |

SUPPORTING TECHNICAL INFORMATION

System Boundaries

This assessment considers the entire life cycle from cradle to grave, including all known industrial processes and materials from raw material acquisition and pre-processing, production, distribution use and maintenance, and end-of-life management. This system boundary was established in accordance with BIFMA PCR for Seating: UNCPC 3811, v3.

Cut-off Criteria

All known materials and processes contributing greater than 1% of the total environmental impacts were included in the life cycle inventory. When primary data associated with a material and / or process was not available, surrogate type materials and processes were used.

Data Sources

Unit processes were developed with GaBi ts, vs. 6.115, drawing upon data from multiple sources. Primary data were provided by Haworth. The primary sources of secondary LCI data were GaBi ts, vs. 6.115 and EcoInvent, vs 3.1.

Data Quality

Table 6.1. Data quality assessment of Life Cycle Inventory.

| Data Quality Parameter | Data Quality Discussion |
|---|---|
| <p>Time-Related Coverage: Age of data and the minimum length of time over which data is collected</p> | <p>As required by this study, primary data was collected over a one year period: Haworth Facility data was collected for over the period of calendar year 2014 and Zody Task Chair transportation from final assembly to customer based on calendar year 2015 shipment data. Representative data obtained from GaBi ts, DB version 6.115 and the EcoInvent 3.1 database is less than 10 years old, with two exceptions: the datasets for polyurethane foam and polypropylene injection moulding are from 2005. This data was used as it was the most current available. All data is considered representative of current practices, materials and technology.</p> |
| <p>Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study</p> | <p>Representative data obtained from either GaBi ts, DB version 6.115 or EcoInvent 3.1 database are mainly US based datasets. There were some European based datasets utilized, since US data was not available. However, data originates from regions with similar technological advancements and is considered to satisfy the goal of this study.</p> |
| <p>Technology Coverage: Specific technology or technology mix</p> | <p>GaBi ts, DB version 6.115 or EcoInvent 3.1 database datasets utilized in this study are considered to accurately represent the material production and processes within the Zody Task Chair life cycle.</p> |

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