



# OE1 Micro Packs

Workspace



## Environmental Product Declaration

Date of Issue: September 21, 2022

Date of Expiration: September 21, 2027

### Product Category Rules

BIFMA PCR for Office Furniture Workspace Products, UNCPC 3814

ISO 14025/14040/14044 and EN 15804

### Functional Unit

1 m<sup>2</sup> of workspace maintained for a 10-year period

\*The reference product is a desk covering 2.15 m<sup>2</sup> meaning 0.47 units are required to meet the functional unit.

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.

\*The results presented in this report consist of the weighted average impacts of OE1 Micro Packs made in the United States and the United Kingdom. The reference product noted relates to a specific SKU for the product manufactured in the US.

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Environmental  
Product Declaration  
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Environmental Product Declaration

# OE1 Micro Packs

Program Operator	NSF Certification LLC 789 N. Dixboro, Ann Arbor, MI 48105 www.nsf.org	
Manufacturer Name and Address	Herman Miller 855 East Main Ave. PO Box 302 Zeeland, MI 49464-0302 USA	
Declaration Number	EPD10779	
Declared Product and Functional Unit	OE1 Micro Packs Functional Unit: 1 m <sup>2</sup> of workspace maintained for 10 years	
Reference PCR and Version Number	BIFMA PCR for Workspace	
Product's intended Application and Use	Workspace	
Product RSL	10 years	
Markets of Applicability	North America, EMEA	
Date of Issue	September 21, 2022	
Period of Validity	5 years from date of issue	
EPD Type	Product Specific	
Intended Audience	Business-to-Business, Business-to-Consumer	
Range of Dataset Variability	N/A	
EPD Scope	Cradle to Grave	
Year of reported manufacturer primary data	Fiscal Year 2020 (April 2019-March 2020)	
LCA Software and Version Number	GaBi 10.6.1.35	
LCI Database and Version Number	GaBi Database 2021.1	
LCIA Methodology and Version Number	TRACI 2.1 CML 2001-Oct 2012	
The PCR review was conducted by:	Review Panel Chaired by Dr. Thomas Gloria	
This declaration was independently verified in accordance with ISO 14025: 2006. The CEN Norm EN 15804 (2012), serves as the core PCR, with additional considerations from BIFMA PCR for Office Furniture Workspace Products. <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External	Tony Favilla afavilla@nsf.org	
This reference life cycle assessment was conducted in accordance with ISO 14044 and the reference PCRs:	Herman Miller Background Report for LCA/EPD Creation Tool v1.6 Matt Van Duinen - WAP Sustainability Consulting matt@wapsustainability.com	
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Jack Geibig - EcoForm jgeibig@ecoform.com	
References	BIFMA PCR for Office Furniture Workspace Products: UNCPC 3814. ISO 14025/40/44; 2006 EN 15804:2012+A1; 2013 Herman Miller Background Report for LCA/EPD Creation Tool v1.6	
<p>Limitations:</p> <p>Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of Products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR. Full conformance with the PCR for Products allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.</p>		

# OE1 Micro Packs

## Product Description

Designed by Sam Hecht and Kim Colin

OE1 Micro Packs are height-adjustable workstations that add agility to every corner of the office. Part of the OE1 Workspace Collection.

OE1 Micro Packs are casual, sit-to-stand desks where people can drop in for a few minutes of focus—or do standing work away from their desks. Perfect for teams that fluctuate in size or visitors who need a place to land. OE1 Micro Packs have a variety of options to choose from. Colors range from subtle to bold, and configurations come in single, three, and four-packs. So organizations can express their brand or identify team spaces with color—and get the right applications to fit their floorplan.



### Company Description

MillerKnoll is a collective of dynamic brands that comes together to design the world we live in. Together we are redefining modern design for the 21<sup>st</sup> century and changing the world for the better. As MillerKnoll, we form an unparalleled platform from which to imagine a more sustainable, caring, and beautiful world for everyone.

Herman Miller, a brand within MillerKnoll, creates inspiring designs to help people do great things at work, for learning, for wellness, at home, wherever people are. Our designs and the designers who work with us solve real problems for people and their organizations. This way of thinking about design has led us to be recognized as an innovator in furnishings, personal work accessories, and strategic services.

### Our Sustainability Goals

We will be Resource Smart, Eco-inspired, and Community Driven.

#### Resource Smart

- Zero Waste
- Net Zero Water
- Net Zero Energy

#### Eco-inspired Design

- All products designed for the environment
- All products BIFMA level 3 certified
- Closed-Loop recycling of used product

#### Community Driven

- All employees engaged in Earthright
- All suppliers committed to being Resource Smart

### Supplier Support

At Herman Miller, we are committed to working closely with our suppliers to reduce our collective impact on the environment. We encourage our suppliers to minimize their operations' environmental impacts and require they assist us in decreasing our facilities' environmental effects.

### Manufacturing Location

- 10201 Adams St, Holland, MI 49423, United States
- 1 Portal Rd, Bowerhill, Melksham, SN12 6GN, United Kingdom

### Warranty

Backed by Herman Miller's 12-year, 24/7 warranty

### Design for the Environment Criteria

Our commitment to corporate sustainability naturally includes minimizing the environmental impact of each of our products. Our Design for the Environment team applies environmentally sensitive design standards to both new and existing Herman Miller products, and goes beyond regulatory compliance to thoroughly evaluate new product designs in key areas:

- **Material Chemistry and Safety of Inputs**

What chemicals are in the materials we specify, and are they the safest available?

- **Disassembly**

Can we take products apart at the end of their useful life, to recycle their materials?

- **Recyclability**

Do the materials contain recycled content, and more importantly, can the materials be recycled at the end of the product's useful life?

- **Life Cycle Assessment (LCA)**

Have we optimized the product based on the entire life cycle?

### Product Environmental Data

	United States	United Kingdom
Recycled Content	44%	56%
Post-Consumer	38%	38%
Pre-Consumer	6%	18%
Recyclability (max %) *	79%	69%

\*This recyclability rate is the maximum amount of the product that is recyclable, based on the availability of recycling facilities in the specified regions and the ability of the product to be disassembled. Note that, per the requirements of the PCR, the End-of-Life results presented in this EPD were calculated using the US EPA's recycling rates within the 2020 Municipal Solid Waste Report for parts that can be disassembled.

### Environmental Certifications\*\*

BIFMA level® 3  
SCS Indoor Advantage™ Gold  
FSC® Chain of Custody

### Packaging\*\*

Returnable packaging is available.

Additional information, including installation and recycling instructions, can be found at

<https://www.hermanmiller.com/products/workspaces/collaborative-furniture/oe1-agile-wall/pro-resources/>

\*\*This data is specific to US-produced products. For data on UK-produced products, please contact your sales representative or visit [www.hermanmiller.com](http://www.hermanmiller.com)

# OE1 Micro Packs

## MATERIAL DECLARATION

### Functional Unit

1 m<sup>2</sup> of workspace for 1 individual maintained over a 10-year period, including packaging materials used for the final assembled product.

### Reference Flow and Product Specifications

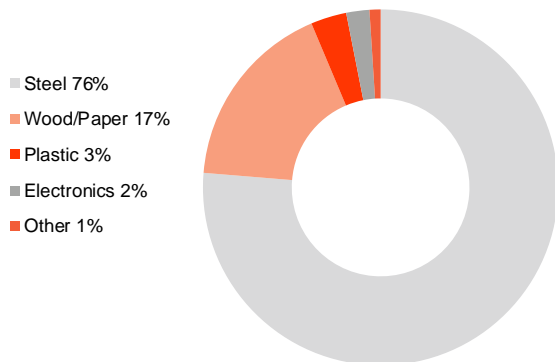
One station of OE1 Micro Packs with 4 tiles, each 23" deep by 33" wide with laminate top and square thermoplastic edges, sitting at 27" height and adjustable up to 42" tall" using an electric mechanism, with USB-A/USB-C combo and simplex power receptacle for user attached below the surface (product number: HZ320S.2333L04EBSKSJ91LBGLBC91) was modeled for this EPD. This is determined to be a representative product based on sales of the variations. The results presented on the subsequent pages consist of the weighted average impacts of OE1 Micro Packs made in the United States and the United Kingdom. The product composition table to the right relates to a specific SKU for the product manufactured in the US.

### System Boundary

Cradle-to-Grave

### Content Declaration

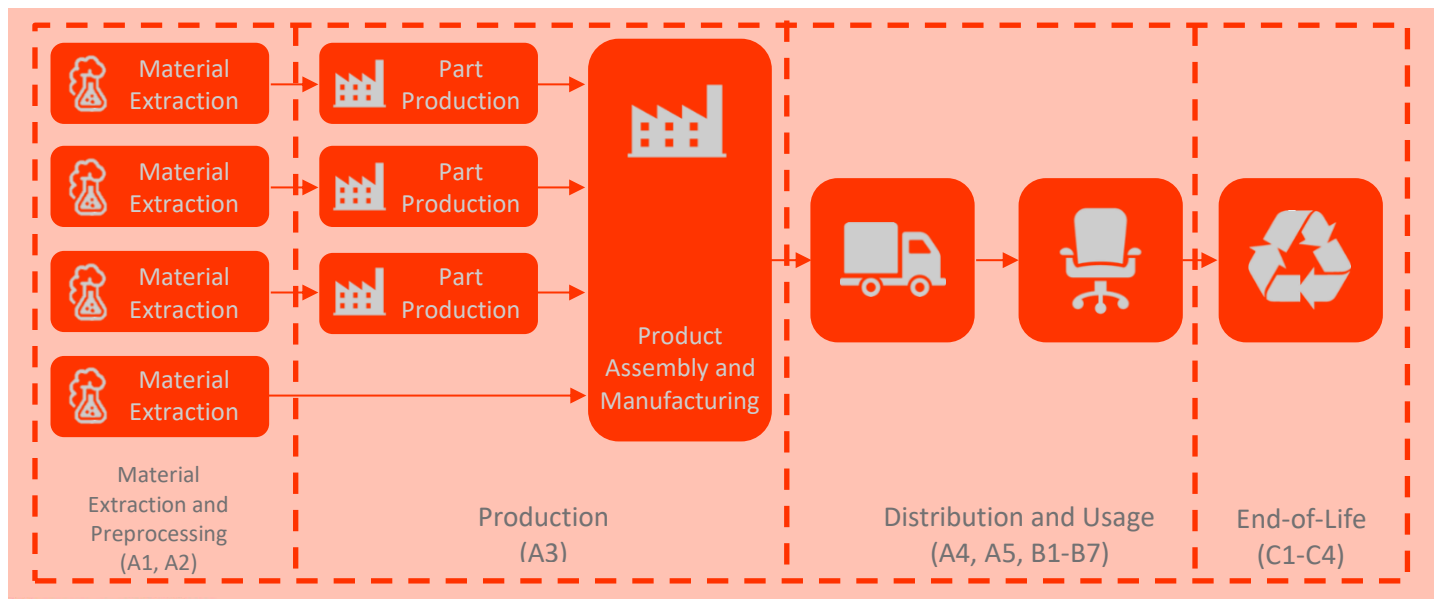
The table to the right details the materials included in a specific SKU for the product made in the United States, summarized in the chart below. In order to achieve the functional unit, 0.47 workspace units are required.



Material	Mass (kg)	Mass (%)	Resource
Steel	110.74	76.0%	Virgin Non-Renewable and Recycled Content
Particle Board	25.15	17.3%	Virgin Renewable and Recycled Content
Electric Components	3.08	2.1%	Virgin Non-Renewable
Acrylonitrile Butadiene Styrene (ABS)	1.45	1.0%	Virgin Non-Renewable
Polypropylene (PP)	1.02	0.7%	Virgin Non-Renewable
Aluminum	1.00	0.7%	Recycled Content
Finish	0.76	0.5%	Virgin Non-Renewable
Polycarbonate (PC)	0.49	<1%	Virgin Non-Renewable
Thermoplastic Polyurethane (TPU)	0.46	<1%	Virgin Non-Renewable
Polyethylene (PE)	0.42	<1%	Virgin Non-Renewable
Other	1.14	<1%	Virgin Non-Renewable
<b>Total</b>	<b>145.71</b>	<b>100%</b>	

Packaging*	Mass (kg)	Mass (%)	Resource
Corrugate	5.07	99.8%	Recycled Content
Other	0.01	<1%	Virgin Non-renewable
<b>Total</b>	<b>5.08</b>	<b>100%</b>	







\*Returnable/reusable shipping blankets also available



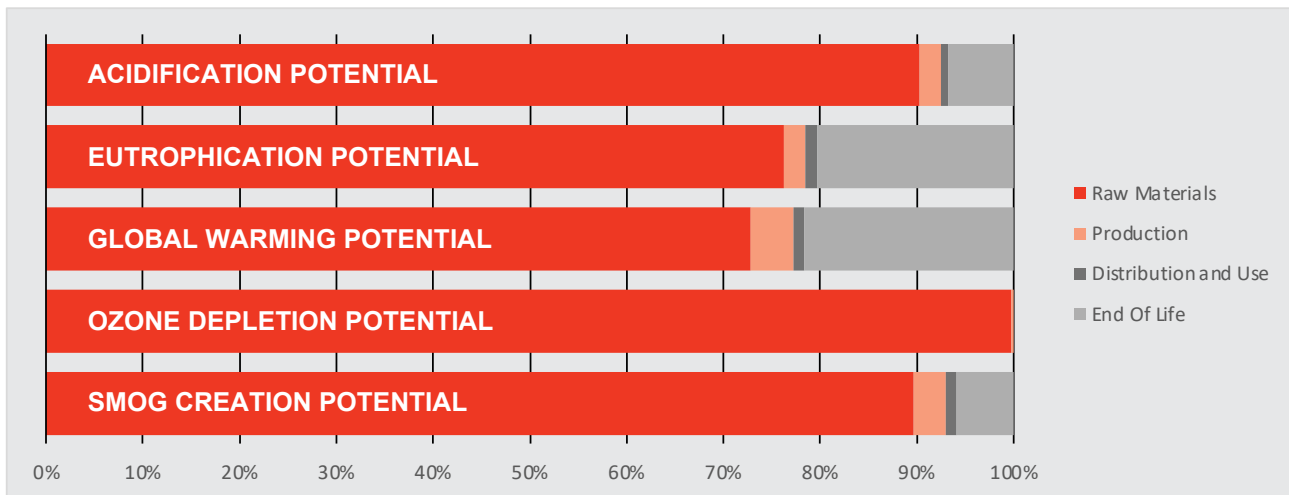
# OE1 Micro Packs

## Life Cycle Impact Assessment – BIFMA PCR for Weighted Average Production of United States and United Kingdom

Environmental Impacts were calculated using the GaBi software platform. Impact results according to the BIFMA PCR have been calculated using TRACI 2.1 characterization factors, as well as LCI indicators for primary energy and water usage. Results presented in this report are for 1 m<sup>2</sup> of workspace maintained for 10 years. Additionally, the results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

LCIA Impact Category	Unit	Total	Raw Material Production	Product Production	Distribution and Retail	End of Life
 Acidification Potential	kg SO <sub>2</sub> eq	3.80E-01	3.43E-01	8.29E-03	2.83E-03	2.56E-02
 Eutrophication Potential	kg N eq	2.90E-02	2.22E-02	6.33E-04	3.57E-04	5.88E-03
 Global Warming Potential	kg CO <sub>2</sub> eq	1.09E+02	7.94E+01	4.83E+00	1.15E+00	2.36E+01
 Photochemical Ozone Creation Potential (Smog)	kg O <sub>3</sub> eq	5.63E+00	5.05E+00	1.84E-01	6.20E-02	3.32E-01
 Ozone Depletion Potential	kg CFC-11 eq	4.20E-07	4.19E-07	8.92E-10	2.41E-16	8.51E-15
LCI Impact Category	Unit	Total	Raw Material Production	Product Production	Distribution and Retail	End of Life
 Primary Energy Demand (Renewable and Non-Renewable)	MJ (net cal value)	1.81E+03	1.66E+03	8.80E+01	1.39E+01	5.18E+01
 Fresh Water Consumption	kg	3.66E+02	3.20E+02	1.80E+01	2.51E+00	2.54E+01

### Life Cycle Impacts of OE1 Micro Packs



# OE1 Micro Packs

## APPENDIX: EN 15804

In addition to the previous results, impact results according to EN 15804 have been calculated using CML characterization factors, as well as LCI indicators required. Results presented in this report are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.

### Modeling Assumptions

In order to comply with EN 15804, several modeling assumptions had to be altered from the previous BIFMA PCR-based results, as outlined here. The life cycle modules are aggregated differently according to the table below and Module D is included to calculate the benefits from the end-of-life scenarios including recycling materials, landfill gas capture, and waste-to-energy.

Functional Unit

Parameter	Value
Functional Unit	1 m <sup>2</sup> of workspace for 1 individual maintained for a 10-year period
Reference Product Area	2.15 m <sup>2</sup>
Number of Occupants	1
Number of Products Needed	0.47
Reference Service Life Required	10 years

A4: Transport to the Building Site

Parameter	Value per functional unit
Transportation Type	Diesel Truck
Fuel Consumption	0.244 kg
Distance	2253 km
Capacity Utilization	61%

A5: Installation in the Building

Parameter	Value per functional unit
Packaging Waste Produced	2.37 kg

Reference Service Life

Parameter	Value per functional unit
Reference Service Life	10 Years
Design Application Parameters	Use as indicated in product brochure and warranty
Declared Product Properties	Properties given in product description on page 4

End-of-Life

Parameter	Value per functional unit
Weight of Product Collected	70.3 kg
Weight to Recycling	17.6 kg
Weight to Energy Recovery	10.6 kg
Weight to Landfill	42.1 kg
Distance to Recycling	50 km
Distance to Energy Recovery	100 km
Distance to Landfill	50 km

### Life Cycle Stages

The results are provided according to the following life cycle modules:

Module	Description	Module	Description	Module	Description
A1	Product Stage: Raw Material Supply	B1	Use Stage: Use	C1	EOL: Deconstruction
A2	Product Stage: Transport	B2	Use Stage: Maintenance	C2	EOL: Transport
A3	Product Stage: Manufacturing	B3	Use Stage: Repair	C3	EOL: Waste Processing
A4	Construction Process Stage: Transport	B4	Use Stage: Replacement	C4	EOL: Disposal
A5	Construction Process Stage: Installation	B5	Use Stage: Refurbishment	D	Benefits beyond system
		B6	Operational Energy Use		
		B7	Operational Water Use		

# OE1 Micro Packs

## LCA Results – Weighted Average Production of United States and United Kingdom

### CML Results – 1 m<sup>2</sup> of workspace maintained for 10 Years

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements [kg Sb eq]	1.38E-03	2.81E-07	2.42E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.81E-07	0.00E+00	-3.93E-08	-3.55E-03
ADP-fossil fuel [MJ]	1.13E+03	1.08E+01	4.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E+01	0.00E+00	3.19E+01	-1.96E+02
AP [kg SO <sub>2</sub> eq]	3.27E-01	1.89E-03	1.15E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.94E-03	0.00E+00	9.58E-03	-5.21E-02
EP [kg Phosphate eq]	3.54E-02	5.17E-04	1.44E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.27E-04	0.00E+00	1.39E-02	-6.25E-03
GWP [kg CO <sub>2</sub> eq]	8.42E+01	9.10E-01	2.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.56E-01	0.00E+00	2.27E+01	-1.88E+01
ODP [kg CFC 11 eq]	3.86E-07	1.55E-16	8.51E-17	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-16	0.00E+00	8.34E-15	-4.11E-13
POCP [kg Ethene eq]	3.63E-02	-6.42E-04	3.74E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.54E-04	0.00E+00	4.39E-03	-6.18E-03

ADP=Abiotic Depletion Potential; AP=Acidification Potential; EP=Eutrophication Potential; GWP=Global Warming Potential; ODP=Ozone Depletion Potential; POCP=Photochemical ozone creation potential

### Resource Use and Waste – 1 m<sup>2</sup> of workspace maintained for 10 Years

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RPR <sub>E</sub> [MJ]	4.18E+02	5.21E-01	2.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.35E-01	0.00E+00	2.35E+00	-5.42E+01
RPR <sub>M</sub> [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RPR <sub>T</sub> [MJ]	4.18E+02	5.21E-01	2.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.35E-01	0.00E+00	2.35E+00	-5.42E+01
NRPR <sub>E</sub> [MJ]	1.33E+03	1.29E+01	4.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E+01	0.00E+00	3.54E+01	-2.25E+02
NRPR <sub>M</sub> [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPR <sub>T</sub> [MJ]	1.33E+03	1.29E+01	4.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E+01	0.00E+00	3.54E+01	-2.25E+02
SM [kg]	2.23E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW [m <sup>3</sup> ]	3.38E-01	2.25E-03	2.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.23E-03	0.00E+00	2.32E-02	-4.50E-02
HWD [kg]	1.74E-05	1.08E-09	7.25E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.08E-09	0.00E+00	6.16E-09	-4.28E-08
NHWD [kg]	4.62E+00	1.17E-03	3.98E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E-03	0.00E+00	3.98E+01	-4.89E-01
RWD [kg]	2.58E-02	3.08E-05	4.86E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-05	0.00E+00	4.54E-04	-6.37E-03
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR [kg]	2.70E+00	0.00E+00	1.77E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.77E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER [kg]	0.00E+00	0.00E+00	1.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.06E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

RPR<sub>E</sub>=Renewable Primary Energy from Non-Materials; RPR<sub>M</sub> =Renewable Primary Energy from Materials; RPR<sub>T</sub> =Total Renewable Primary Energy; NRPR<sub>E</sub>=Non-Renewable Primary Energy from Non-Materials; NRPR<sub>M</sub> =Non-Renewable Primary Energy from Materials; NRPR<sub>T</sub> =Total Non-Renewable Primary Energy; SM=Use of Secondary Materials; RSF=Use of Renewable Secondary Fuels; NRSF=Use of Non-Renewable Secondary Fuels; FW=Net Use of Fresh Water; HWD=Hazardous Waste Disposed; NHWD=Non-Hazardous Waste Disposed; RWD=Radioactive Waste Disposed; CRU=Components for Reuse; MFR=Materials for Recycling; MER=Materials for Energy Recovery; EE=Exported Energy