Mora™ System

Storage

Environmental Product Declaration

Date of Issue: May 5th, 2022

Date of Expiration: May 5th, 2027

Product Category Rules

BIFMA PCR for Storage, UNCPC 3812

ISO 14025/14040/14044 and EN 15804

Functional Unit

0.15 m³ of storage space maintained for a 10-year period

(0.32 of modeled storage configurations required to meet functional unit)

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NSF

Certified Environmental Product Declaration
www.nsf.org

Environmental Product Declaration

Mora™System

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	EPD10728
Declared Product and Functional Unit	Mora System Storage Device with Retractable Storage Functional Unit: 0.15 m3 of storage maintained for 10 years
Reference PCR and Version Number	BIFMA PCR for Storage
Product's intended Application and Use	General Office Storage
Product RSL	10 years
Markets of Applicability	North/South America, EMEA, APAC
Date of Issue	May 5th, 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 10.5.0.78
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. CEN Norm EN 15804 (2012) serves as the core PCR, with additional considerations from the BIFMA PCR for Storage. ☐ Internal ☒ 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 Storage: UNCPC 3812 ISO 14025/40/44; 2006 EN 15804:2012+A1; 2013 Herman Miller Background Report for LCA/EPD Creation Tool v1.4

Limitations:
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.

Mora™ System

Product Description

Designed by Colin Nourie
Mora is made to foster better clinical relationships—purposefully designed to remedy basic storage problems and to enhance interactions and relationships between caregiver and patient. And while it solves for these problems, its elegant aesthetic also works hard—and beautifully—in other settings, across the healthcare landscape. Mora provides personalized storage choices. Stow supplies that need to be readily accessible and conceal less important items.

This document relates to Mora systems with a wall mounted door case, a wall mounted drawer case, a Corian worksurface with a sink, and overhead storage.

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 21st 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 MillerKnoll, 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 Locations
- 10201 Adams St, Holland, MI 49423, United States

Warranty
Backed by MillerKnoll'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
61% Recycled Content
<1% Post-Consumer
60% Pre-Consumer
Up to 22% Recyclability *
*Based on availability of recycling facilities.

Environmental Certifications**
BIFMA level™ 3
Indoor Advantage™ Gold

Packaging**
Returnable packaging is available.

Additional information, including installation and recycling instructions, can be found at https://www.hermanmiller.com/products/healthcare/healthcare-casework/mora-system/pro-resources/

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MATERIAL DECLARATION

Functional Unit
0.15 m^3 of general storage space maintained over a 10-year period, including packaging materials used for the final assembled product.

### Reference Flow and Product Specifications
This study modeled 0.32 Mora system units (storage products with product numbers beginning with CH) with 0.15 m^3 of storage space, including door and drawer cases, a sink, and overhead storage. This storage unit is determined to be a representative product based on sales of the variations.

System Boundary
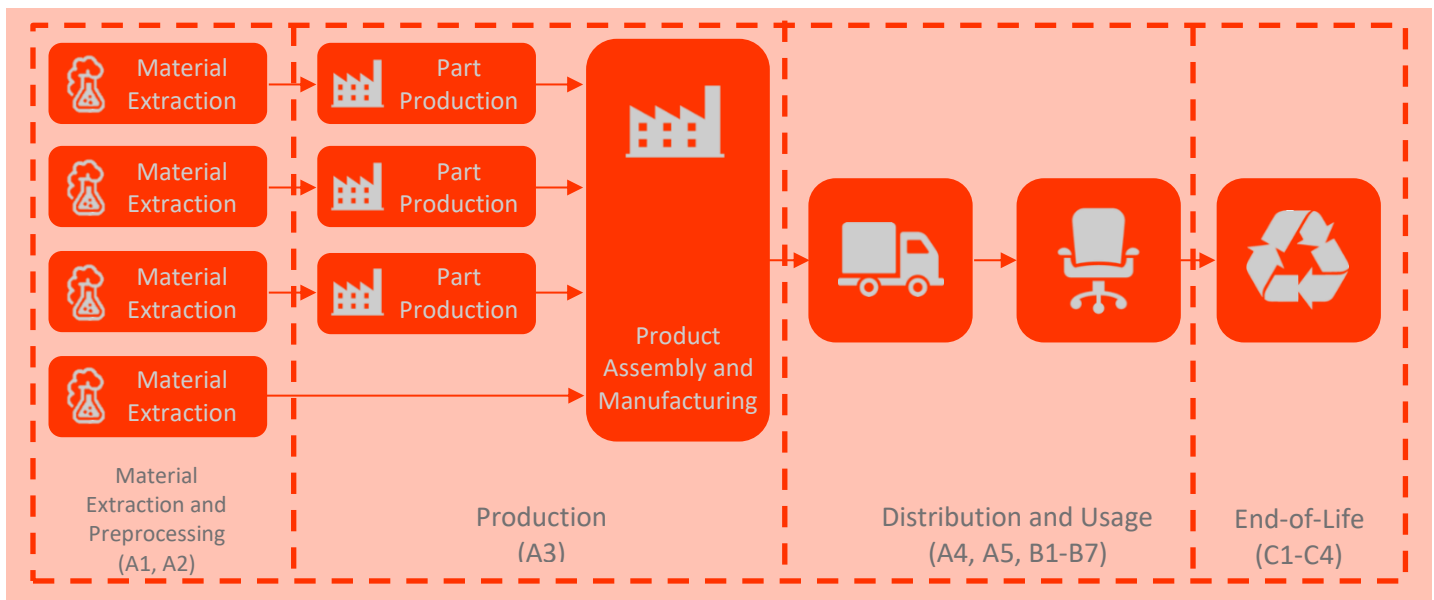Cradle-to-Grave

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, 1 product is required.

- Wood/Paper 76%
- Plastic 17%
- Steel 6%
- Other 0.3%
- Aluminum 0.3%
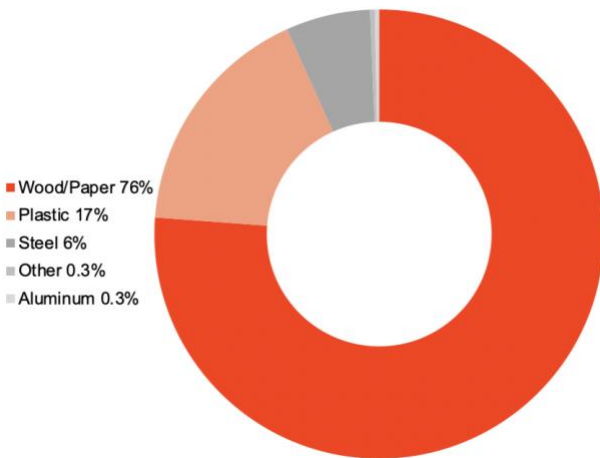
Material	Mass (kg)	Mass (%)	Resource
Particle Board	79.78	73%	Virgin Renewable
Polymethyl Methacrylate (PMMA)	16.86	16%	Virgin Non-renewable
Steel	6.58	6%	Recycled Content
Plywood	2.64	2%	Virgin Renewable
Polypropylene (PP)	1.53	1%	Virgin Non-renewable
Zinc	0.40	<1%	Virgin Non-renewable
Adhesive	0.36	<1%	Virgin Non-renewable
Aluminum	0.33	<1%	Virgin Non-renewable
Other Materials	0.10	<1%	Virgin Non-renewable
Total	**108.58**	**100%**	

Packaging*	Mass (kg)	Mass (%)	Resource
Corrugate	25.72	79%	Recycled Content
Foam	2.85	9%	Virgin Non-renewable
PE Bag	0.01	<1%	Virgin Non-renewable
PE Film	1.45	4%	Virgin Non-renewable
PP and PET Banding	2.28	7%	Virgin Non-renewable
Total	**32.31**	**100%**	

*Returnable/reusable shipping blankets also available

Material Extraction	Part Production
Material Extraction	Part Production
Material Extraction	Part Production
Material Extraction	

Product Assembly and Manufacturing

Material Extraction and Preprocessing (A1, A2)

Production (A3)

Distribution and Usage (A4, A5, B1-B7)

End-of-Life (C1-C4)

Overview of Life Cycle Stages

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

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 0.15 m^3 of storage 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_2 eq	3.89E-01	2.43E-01	1.00E-01	2.10E-03	4.35E-02
	Eutrophication Potential	kg N eq	5.74E-02	3.63E-02	8.13E-03	3.20E-04	1.27E-02
	Global Warming Potential	kg CO_2 eq	9.73E+01	-4.99E+00	5.08E+01	1.09E+00	5.04E+01
	Photochemical Ozone Creation Potential (Smog)	kg O_3 eq	5.32E+00	3.67E+00	1.15E+00	4.24E-02	4.52E-01
	Ozone Depletion Potential	kg CFC-11 eq	9.44E-07	9.38E-07	6.71E-09	1.76E-16	7.56E-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)	3.20E+03	2.31E+03	8.31E+02	9.11E+00	4.64E+01
	Fresh Water Consumption	kg	5.30E+02	3.63E+02	1.35E+02	1.75E+00	3.00E+01

Life Cycle Impacts of Mora

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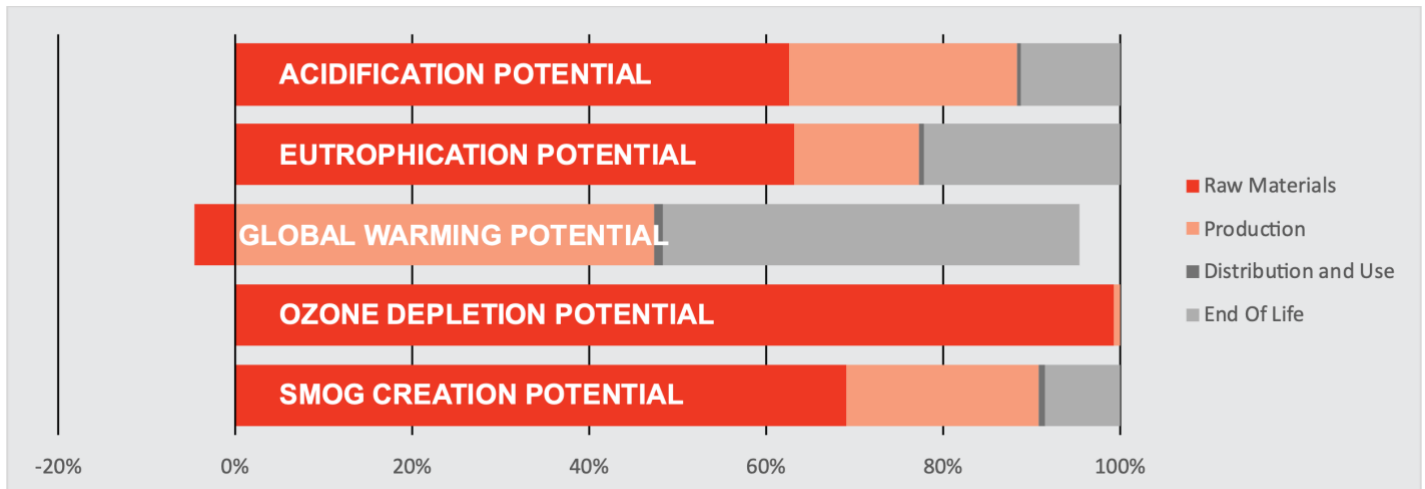
APPENDIX: INSIDE/INSIDE PCR

In addition to the previous results, impact results according to the INSIDE/INSIDE PCR Furniture have been calculated using CML characterization factors, as well as LCI indicators required by EN 15804. 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 the INSIDE/INSIDE PCR Furniture, several modeling assumptions had to be altered from the previous BIFMA PCR-based results, as outlined here. The transportation to customer has been reduced to 1km by truck, the expected periods for modules B1, B2, and B3 are 1 year, the end-of-life scenarios are based on specific PCR requirements, 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. Due to these modeling assumption differences with the BIFMA PCR, the results shown here are not comparable with the results presented previously.

Functional Unit

Parameter	Value
Declared Unit	1 Unit
Number of Occupants	1
Reference Service Life Required	10 years

A4: Transport to the Building Site

Parameter	Value per functional unit
Transportation Type	Diesel Truck
Fuel Consumption	0.158 kg
Distance	1 km for results calculation (1500 km estimated value)
Capacity Utilization	61%

A5: Installation in the Building

Parameter	Value per functional unit
Packaging Waste Produced	10.46 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	45.6 kg
Weight to Recycling	9.4 kg
Weight to Energy Recovery	7.3 kg
Weight to Landfill	28.9 kg
Distance to Recycling	50 km
Distance to Energy Recovery	100 km
Distance to Landfill	50 km

The values above represent the disposal of a specific SKU for the product made in the United States.

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		

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LCA Results – United States Production

CML Results – 0.15 m³ of storage 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]	5.60E-04	1.81E-07	4.10E-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	1.79E-07	0.00E+00	2.31E-07	-1.69E-04
ADP-fossil fuel [MJ]	1.56E+03	6.94E+00	3.83E-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	6.87E+00	0.00E+00	3.14E+01	-1.03E+02
AP [kg SO₂ eq]	2.98E-01	1.22E-03	1.34E-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	1.21E-03	0.00E+00	1.22E-02	-3.47E-02
EP [kg Phosphate eq]	5.00E-02	3.34E-04	3.11E-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	3.31E-04	0.00E+00	3.08E-02	-8.04E-03
GWP [kg CO₂ eq]	4.58E+01	5.87E-01	5.04E-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	5.81E-01	0.00E+00	4.98E+01	-2.85E+00
ODP [kg CFC 11 eq]	8.67E-07	1.00E-16	7.56E-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	9.93E-17	0.00E+00	7.46E-15	-1.23E-12
POCP [kg Ethene eq]	3.24E-02	-4.14E-04	8.86E-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	-4.10E-04	0.00E+00	9.27E-03	-2.79E-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 – 0.15 m³ of storage maintained for 10 Years

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
RPR$_E$ [MJ]	9.74E+02	3.36E-01	2.81E-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	3.33E-01	0.00E+00	2.48E+00	-1.11E+02
RPR$_M$ [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$_T$ [MJ]	9.74E+02	3.36E-01	2.81E-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	3.33E-01	0.00E+00	2.48E+00	-1.11E+02
NRPR$_E$ [MJ]	2.17E+03	8.31E+00	4.36E-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	8.22E+00	0.00E+00	3.54E+01	-1.62E+02
NRPR$_M$ [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$_T$ [MJ]	2.17E+03	8.31E+00	4.36E-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	8.22E+00	0.00E+00	3.54E+01	-1.62E+02
SM [kg]	1.03E+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
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 [m³]	4.98E-01	1.45E-03	3.00E-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	1.44E-03	0.00E+00	2.86E-02	-5.66E-02
HWD [kg]	1.45E-06	6.97E-10	6.50E-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	6.90E-10	0.00E+00	5.81E-09	-1.00E-07
NHWD [kg]	1.02E+01	7.53E-04	2.08E-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	7.46E-04	0.00E+00	2.08E+01	-7.31E-01
RWD [kg]	7.10E-02	1.99E-05	5.01E-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	1.97E-05	0.00E+00	4.81E-04	-5.31E-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]	2.56E+00	0.00E+00	9.38E-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	9.38E+00	0.00E+00	0.00E+00	0.00E+00
MER [kg]	0.00E+00	0.00E+00	7.25E-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	7.25E+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$_E$=Renewable Primary Energy from Non-Materials; RPR$_M$=Renewable Primary Energy from Materials; RPR$_T$=Total Renewable Primary Energy; NRPR$_E$=Non-Renewable Primary Energy from Non-Materials; NRPR$_M$=Non-Renewable Primary Energy from Materials; NRPR$_T$=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

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