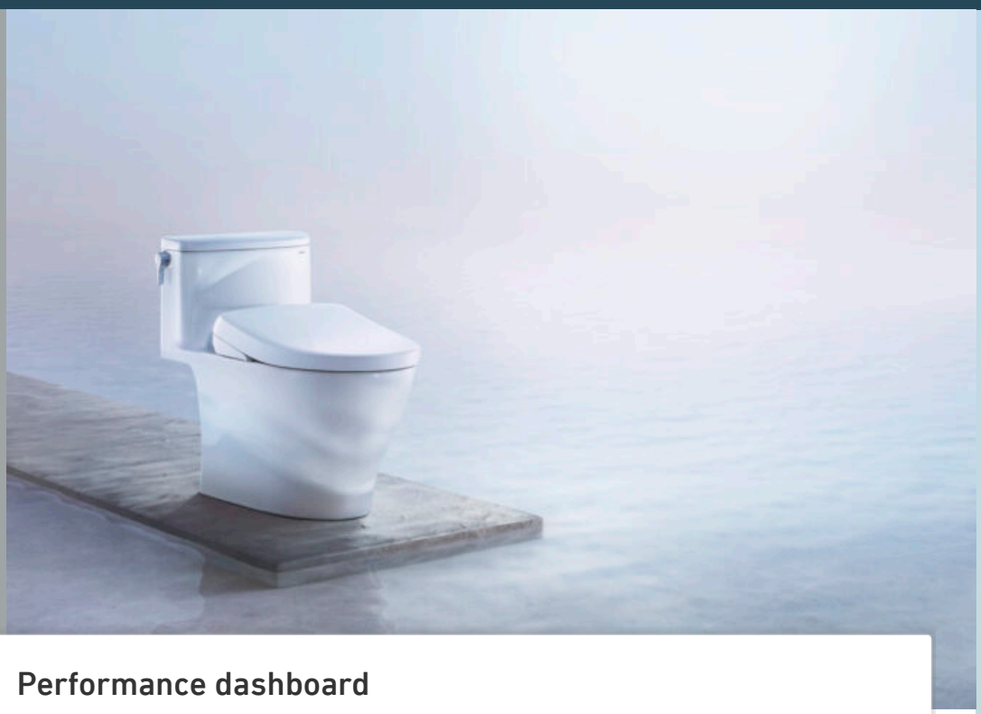
TOTO®

WASHLET® S7

In 1980, TOTO introduced WASHLET, the first luxury toilet seat with electronic bidet functionality. Today, millions in North America have shifted from wiping to washing with WASHLET, experiencing a new kind of clean that leaves them refreshed and confident.

The warm-water cleansing, heated seat, and warm air dryer offer complete cleansing and comfort. The warm water and gentle drying cycle reduce the need for toilet tissue, making it eco-friendly. Easy to install on most standard toilets, TOTO has sold over 60,000,000 WASHLET seats worldwide, revolutionizing personal cleanliness and setting a new standard in bathroom luxury.



Performance dashboard

Features & functionality

PREMIST®: The bowl's interior is sprayed with a fine water mist to reduce waste's ability to stick to its surface, resulting in a better clean.

EWATER+®: Electrolyzed water sprays bowl and wand, ensuring cleanliness without harsh chemicals; reverts to tap water over time.

Gentle aerated, warm water, dual-action spray with oscillating and pulsating features

Adjustable spray position, water temperature, and water pressure

Instantaneous water heater for continuous warm water and energy savings

Heated seat and warm air dryer with temperature control settings

Visit TOTO for more product specifications:

WASHLET® S7 Classic, Contemporary

MasterFormat® 22 41 13.19
Product specifications:

WASHLET® S7

For spec help, contact us or call 888-295-8134

Environment & materials

Improved by:

PREMIST®: The bowl's interior is sprayed with a fine water mist to reduce waste's ability to stick to its surface, resulting in a better clean.

EWATER+®: Electrolyzed water sprays bowl and wand, ensuring cleanliness without harsh chemicals; reverts to tap water over time.

Certification & rating systems:

IAPMO

Meets and exceeds ASME A112.4.2, ASME A112.18.1/CSA B125.1, UL 1431, CSA C22.2 #68

Declare™ label

See LCA, interpretation & rating systems

See materials, interpretation & rating systems

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓ NSF
	Transparency Report (EPD)
3rd-party verified	✓ NSF

Validity: 08/31/2024 – 08/30/2029
TOTO – 20240831 – 001

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Jack Geibig (Ecoform) on behalf of NSF according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; the reference PCR; and ISO 14025:2006.

Ecoform, LLC
11903 Black Road
Knoxville, TN 37932
(865) 850-1883
www.ecoform.com

NSF International
P.O Box 130140, 789 N.Dixboro Road,
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

NSF Certified Environmental Product Declaration www.nsf.org

SUMMARY

Reference PCR
SM Part B: Electronic bidet seats, v1.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit
One electronic bidet seat in an average residential environment over the estimated service life of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent and USLCI databases

In accordance with ISO 14044 and the referenced PCR, the life cycle assessment was conducted by Sustainable Minds and critically reviewed by Jack Geibig (Ecoform) on behalf of NSF.

Public LCA
LCA background report of TOTO WASHLET S7, 2024

TOTO USA
1155 Southern Road
Morrow, GA 30260
www.totousa.com

Contact us

© 2024 | The SM Transparency Report [EPD]™ Program is operated by Sustainable Minds® (www.sustainableminds.com) | Privacy policy

LCA results & interpretation

WASHLET® S7

LCA results & interpretation | EPD additional content | Material health

Scope and summary

○ Cradle to gate ○ Cradle to gate with options ✓ **Cradle to grave**

Functional unit

One electronic bidet seat used in an average residential environment over the estimated service life of the building. The expected service life (ESL) of a building is 75 years, and all use stage activity and impacts are accounted for in that full ESL period. The reference service life (RSL) of the bidet seat is 15 years, which is an industry-accepted average lifespan based on the economic lifespan of the product.

Maintenance

The bidet seat requires periodic cleaning, and each cleaning event uses 0.34 fl oz (10mL) of a 1% sodium lauryl sulfate (SLS) solution. The seat and lid are assumed to be cleaned twice a month, the electric plug/cord and gap between the toilet tank and seat monthly, the deodorizing filter monthly, the wand weekly, and the water filter parts every six months. The deodorizing filter and water filter are assumed to be fully replaced once every ten years, and the battery is assumed to be replaced every six years.

The waste activities associated with the disposal of old filters are included.

Repair and replacement

The lid assembly, lid bumpers, seat bumpers, deodorizer assembly, air filter, and flexible hose assembly are assumed to be fully replaced once during the 15-year RSL period as part of regular repairs. At the end of its RSL, the bidet seat is assumed to be replaced. Therefore, an additional 4 products are included as replacements, with all life cycle modules considered, over the building's ESL of 75 years. The waste activities associated with the disposal of replaced parts are included.

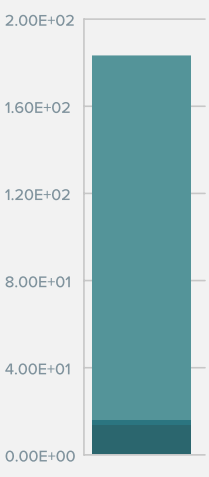
Manufacturing data

Manufacturing data has been collected and compiled for TOTO Malaysia.
Data reporting period: 2023.

Material composition greater than 1% by weight

MATERIAL	WT%
Polypropylene	37.6%
Cardboard packaging	18.0%
Paper packaging	9.19%
Board electronics	6.31%
Acrylonitrile butadiene styrene	5.01%
Copper	4.46%
Polyphenylene sulfide	4.06%
Stainless steel	3.43%
Polyoxymethylene	1.91%
Aluminum	1.90%
Low density polyethylene	1.73%
Nylon	1.58%
Polyethylene terephthalate	1.43%
Silicone	1.25%
Others	2.14%

Total impacts by life cycle stage [mPts/func unit]



LIFE CYCLE STAGE	MPTS/FUNC. UNIT
Production	1.82E+01
Construction	3.41E+00
Use	1.59E+02
End of life	7.82E-02

Total impacts = 1.80E+02 mPts
per 75 years installed

What's causing the greatest impacts

All life cycle stages

The use stage [B1-B7] dominates the results for all impact categories. The product replacement module [B4] dominates the results for all impact categories except for global warming and fossil fuel depletion, due to the necessity to consider an additional four products as replacements. Operational energy use [B6] contributed the most to global warming and fossil fuel depletion due to the electricity required for bidet seat operations. All life cycle modules are considered throughout the estimated service life (ESL) of the building, which is 75 years. The production stage [A1-A3] itself is slightly significant but does not dominate in any impact category. Additionally, the processes associated with dismantling the product and final waste treatment during the end-of-life stage do not have a significant impact.

Production stage [A1-A3]

The electronics contained in the bidet seat dominate all impact categories in the production stage. Other raw materials contributed a total of only ~20% of the impacts in A1. The assembly of the bidet seat in the product manufacturing stage contributed an insignificant amount compared to raw material extraction and preprocessing.

Construction stage [A4-A5]

Distribution of the product dominates impacts in the construction stage. Transportation by sea for delivery to distribution centers contributes the most, accounting for about 9% of potential smog impacts and 6% of potential acidification impacts. Transportation contributed less than 4% to the remaining impact categories.

Use stage [B1-B7]

Product replacements dominate impacts in the use stage. The use stage itself dominates most impact categories due to the consideration of an additional four products as replacements. Operational energy use [B6] leads the impacts in terms of global warming (~57.2%) and fossil fuel depletion (~57.3%). Electricity used for bidet seat operations, with a mix of peak and nominal power consumption during each use for the entirety of the building's lifetime, contributes highly to those impact categories.

Operational water use [B7] also shows significant impacts to the overall life cycle, mainly in eutrophication (~35.0%), carcinogenics (~15.1%), non-carcinogenics (~15.0%), and ecotoxicity (~5.5%).

End-of-life stage [C1-C4]

The transportation to landfill dominates impacts in the end-of-life stage. Transportation and the processes for dismantling the product contribute to a relatively low portion (<1%) of total results for all impact categories.

Operational energy and water use

Operation of the bidet seat requires electricity and water. As the bidet seat starts up, it uses a peak wattage of 1,446 W for 30 seconds for seat heating, nozzle spraying, and water heating. Then it uses 71.6 W for seat warming for the remaining 12 minutes of operation. This use stage electricity was modeled using a United States grid mix.

The incoming municipal tap water is used for rear cleansing, rear soft cleansing, front cleansing, and wide front cleansing at an average of 0.095gpm. The duration of each use is assumed to be 0.58 minutes at four uses per day. The bidet seat also features pre-misting and post-misting, plus automatic misting every eight hours.

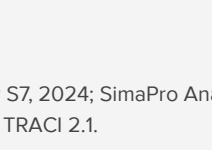
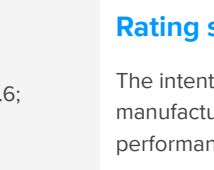
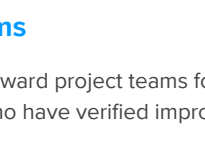
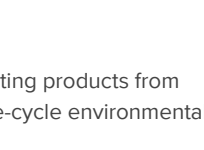
Over the building's ESL of 75 years, the bidet seat is used 109,500 times, consuming 10,586 gallons of water. An electricity factor of 0.000961 kWh per liter of water is used to represent energy for upstream municipal water collection, treatment, supply, and downstream management.

How we're making it greener

TOTO's Washlets are ecology-minded bidet seats that can save 50% of toilet paper consumption or more. Washlets deliver a concentrated stream of water for washing, which greatly facilitates cleaning. TOTO's wonder wave water stream delivery also enhances cleaning efficiency. As a result, not only is saving toilet paper an economic advantage, but less toilet paper use means less water, energy, and other toxic chemicals used upstream in the toilet paper production process. Additionally, only one-eighth of a gallon of water per minute is used in a maximum mode saving water over conventional bidet fixtures. Moreover, this fully eliminates the need for flushable wipes which create an added burden on toilet flushing, pipe clogs, and downstream water treatment at sanitation plants.

See how we make it greener

LCA results

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE
Information modules: **Included (X)** | Excluded (MND)*	(X) A1 Raw materials	(X) A4 Transportation/ Delivery	(X) B1 Use	(X) C1 Deconstruction/ Demolition
	(X) A2 Transportation	(X) A5 Construction/ Installation	(X) B2 Maintenance	(X) C2 Transportation
	(X) A3 Manufacturing		(X) B3 Repair	(X) C3 Waste processing
			(X) B4 Replacement	(X) C4 Disposal
			(X) B5 Refurbishment	
			(X) B6 Operational energy use	
			(X) B7 Operational water use	
				

SM Single Score

Impacts per bidet seat	1.82E+01 mPts	3.41E+00 mPts	1.59E+02 mPts	7.82E-02 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Printed wiring board production as well as other raw material extraction and preprocessing.	Transportation of the product to distribution centers and disposal of packaging.	Amount of electricity used during operation and the number of product replacements needed over the building's service life.	Transport to waste processing and disposal of material flows transported to a landfill.

TRACI v2.1 results per functional unit

Ecological damage

Impact category	Unit				
Global warming	**kg CO_2 eq**	1.59E+02	5.78E+01	2.49E+03	2.32E+00
Ozone depletion	**kg CFC-11 eq**	1.55E-05	5.19E-06	1.52E-04	1.41E-07
Acidification	**kg SO_2 eq**	1.05E+00	8.96E-01	1.43E+01	4.24E-03
Eutrophication	**kg N eq**	2.82E-01	4.46E-02	3.05E+00	3.87E-03

Human health damage

Impact category	Unit				
Smog	**kg O_3 eq**	1.24E+01	1.94E+01	1.83E+02	1.19E-01
Respiratory effects	**kg $PM_{2.5}$ eq**	2.01E-01	5.44E-02	1.42E+00	4.87E-04

Additional environmental information

Impact category	Unit				
Carcinogenics	**CTU_h**	2.83E-06	2.89E-08	1.80E-05	3.43E-09
Non-carcinogenics	**CTU_h**	5.92E-05	2.22E-06	3.64E-04	5.14E-08
Ecotoxicity	**CTU_e**	4.40E+02	3.10E+01	2.26E+03	6.22E-01
Fossil fuel depletion	**MJ surplus**	1.65E+02	1.07E+02	3.19E+03	1.39E+00

References

LCA Background Report
Life Cycle Assessment of TOTO WASHLET® S7, 2024; SimaPro Analyst 9.6; ecoinvent and Industry data 2.0 databases; TRACI 2.1.

ISO 14025, "Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services"

ISO 21930:2017, "Sustainability in Building Construction — Environmental Declaration of Building Products" serves as the core PCR along with Sustainable Minds Part A.

SM Part A: LCA calculation rules and report requirements, version 2023
August, 2023. PCR review conducted by the Sustainable Minds TAB, tab@sustainableminds.com.

SM Part B: Electronic bidet seats, v1.0
March, 2024. PCR review conducted by Jack Geibig, Chair (Ecoform) Jgeibig@ecoform.com; Hugues Imbeault-Tétreault, ing., M.Sc.A. (Groupe AGÉCO); Rebe Feraldi, LCACP, CLAR (Pacific Northwest National Laboratory).

Download PDF SM Transparency Report/EPD

SM Transparency Reports (TR) are ISO 14025 Type III environmental declarations (EPD) that enable purchasers and users to compare the potential environmental performance of products on a life cycle basis. They are designed to present information transparently to make the limitations of comparability more understandable. Environmental declarations of products that conform to the same PCR and include the same life cycle stages, but are made by different manufacturers, may not sufficiently align to support direct comparisons. They therefore cannot be used as comparative assertions unless the conditions as defined in ISO 14025 Section 6.7.2. 'Requirements for Comparability' are satisfied. In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines, use the same sub-category PCR where applicable, include all relevant information modules, be limited to EPDs applying a functional unit, and be based on equivalent scenarios with respect to the context of construction works. Some LCA impact categories and inventory items are still under development and can have high levels of uncertainty. To promote uniform guidance on the data collection, calculation, and reporting of results, the ACLCA methodology (ACLCA 2019) was used.

Rating systems

The intent is to reward project teams for selecting products from manufacturers who have verified improved life-cycle environmental performance.

LEED BD+C: New Construction | v4 - LEED v4

Building product disclosure and optimization

Environmental product declarations

○ Industry-wide (generic) EPD	½ product
✓ Product-specific Type III EPD	1 product

LEED BD+C: New Construction | v4.1 - LEED v4.1

Building product disclosure and optimization

Environmental product declarations

○ Industry-wide (generic) EPD	1 product
✓ Product-specific Type III EPD	1.5 products

Collaborative for High Performance Schools National Criteria

MW C5.1 – Environmental Product Declarations

✓ Third-party certified type III EPD	2 points

Green Globes for New Construction and Sustainable Interiors

Materials and resources

- ✓ NC 3.5.1.2 Path B: Prescriptive Path for Building Core and Shell
- ✓ NC 3.5.2.2 and SI 4.1.2 Path B: Prescriptive Path for Interior Fit-outs

BREEAM New Construction 2018

Mat 02 - Environmental impacts from construction products

Environmental Product Declarations (EPD)

○ Industry-average EPD	.5 points
○ Multi-product specific EPD	.75 points
✓ Product-specific EPD	1 point

© 2024 | The SM Transparency Report [EPD]™ Program is operated by Sustainable Minds® (www.sustainableminds.com) | Privacy policy

EPD additional content

WASHLET® S7

LCA results & interpretation | EPD additional content | Material health

Data

Background This product-specific plant-specific declaration was created by collecting production data from the Malaysia location. All unit processes were modeled using primary data. Secondary data sources include those available in ecoinvent and Industry data 2.0 database. Literature data was used to fill any data gaps to complete the inventory model.

Allocation Since annual resources were reported for the dedicated WASHLET production line and there are no other co-products, no co-product allocation or allocation of multi-input processes were required. No allocation situation occurred requiring the allocation of product inputs and outputs. The model used in this report ensures that the sum of the allocated inputs and outputs of a unit process shall be equal to the inputs and outputs of the unit process before allocation. This means that no double counting or omissions of inputs or outputs through allocation is occurring.

Cut-off criteria for the inclusion of mass and energy flows are 1% of renewable primary resource (energy) usage, 1% nonrenewable primary resource (energy) usage, 1% of the total mass input of that unit process, and 1% of environmental impacts. The total of neglected input flows per module does not exceed 5% of energy usage, mass, and environmental impacts. The only exceptions to these criteria are substances with hazardous and toxic properties, which must be listed even when the given process unit is under the cut-off criterion of 1% of the total mass. No known flows are deliberately excluded from this declaration, and no substances considered to be hazardous or toxic according to the TRI or local regulations are present in the products. Therefore, these criteria have been met. Biogenic carbon is included in reported results.

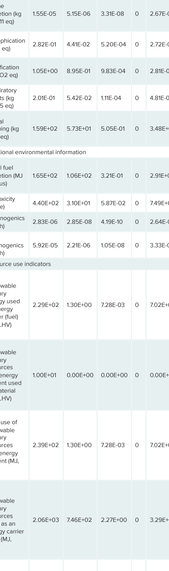
Data sets contributing 5% or more to any environmental impact category

Data set name	Database name and version	Software type and version	Geography	Allocation method
Electricity mix 2021	US-EI 2.2	SimaPro Analyst 9.6	United States	By mass
Treatment, sewage, from residence, to wastewater treatment, class 2	US-EI 2.2	SimaPro Analyst 9.6	United States	By mass
Printed wiring board, surface mounted, unspecified, Pb free (GLO) printed wiring board production, surface mounted, unspecified, Pb free	ecoinvent v3.10	SimaPro Analyst 9.6	Global	By mass

Major system boundary exclusions

- Construction of major capital equipment
- Construction of water and wastewater infrastructure
- Maintenance and operation of support equipment
- Human labor and employee transport
- Manufacture and transport of packaging not associated w/ final product
- Energy consumption in warehouses, distribution centers, and retail facilities during the course of transport to the final customer

Flow diagram



Scenarios and additional technical information

Distribution [A4]

Transportation leg	Mode	Value	Unit
Manufacturing facility (Malaysia) to GA, USA	Road transport in Malaysia	105.8	km
	Sea transport	30,340	km
	Rail transport from port to GA, USA	2,191	km
Transport to final users	Road transport (83%)	1,421	km
	Rail transport (17%)	2,042	km

Installation [A5]

Packaging waste from installation is assumed to be transported 100km to recycling (80.9%), landfill (15.4%), or incineration (3.7%).

End of life [C1-C4]

The model reflects the assumptions that electronic bidet seats are 100% landfilled. The product is assumed to be transported 100 km via truck to final disposal.

However, it should be noted that many of the associated metal and plastic components follow the waste scenarios as listed in the table below. TOTO ceramic materials can be recycled as aggregate in several applications, although this is not currently common practice. Secondary materials, including shredded and sorted metal waste, are valuable goods that lose their status as waste after the sorting process. No additional waste processing is needed in that case, and no credits for material recovery are given.

Material	Potential waste scenario - Recycling	Potential waste scenario - Landfill
Copper, stainless steel, aluminum	70.50%	29.50%
Corrugated board, paper	66.50%	33.50%
PP, ABS, PPS, LDPE, POM, nylon, PET, silicone	15.00%	85.00%

Product information

Product code	ASTM or ANSI product specification
SW4726, SW4726(AT40), SW4724, SW4724(AT40), SW4725, SW4736, SW4736(AT40), SW4734, SW4734(AT40), SW4735	Meets and exceeds: ASME A112.4.2, ASME A112.18.1/CSA B125.1, UL 1431, CSA C22.2#68 Code compliance with UPC, IPC, NSPC, NPC Canada, and others.

Major assumptions and limitations

- Assumptions for upstream processing operations regarding each purchased component were developed via suggestions from TOTO personnel and suppliers.
- It was assumed that the same manufacturing resources were consumed for the assembly of washlets (for all models) in all TOTO facilities.
- Generic data sets used for material inputs, transportation, and waste processing are considered good quality, but actual impacts from material suppliers, transport carriers, and local waste processing may vary.

Data quality assessment

Precision: The precision of the data is considered high. Product engineers provided detailed bills of materials, and facility managers provided utility information for the manufacturing facilities. The raw material transportation distances were calculated based on the raw material manufacturers' addresses, extracted from the relevant SDSs. Proxy datasets were utilized in the LCA model when secondary data were not available, as shown in Appendix A in the published LCA background report.

Completeness: The data included is considered complete. The LCA model included all known material and energy flows. As pointed out in that section, no known flows above 1% were excluded and the sum of all excluded flows totals less than 5%, whether evaluated by mass, energy, or potential environmental impact.

Consistency: The consistency of the model is considered high. The bills of materials provided by the product engineers were developed for multiple internal departments use and are maintained regularly. The LCA practitioner also cross-referenced the installation documents and other relevant information to ensure consistency. Furthermore, modeling assumptions were consistent across the model, with preference given towards SimaPro data, where available.

LCIA results, resource use, output and waste flows, and carbon emissions & removals per functional unit

Parameter	A1-A3	A4	A5	B1, B5	B2	B3	B4	B6	B7	C1, C3	C2	C4	Total
LCIA results													
Smog (kg O3 eq)	1.24E+01	1.94E+01	2.78E-02	0	7.67E-01	1.69E+00	1.28E+02	5.14E+01	1.74E+00	0	1.08E-01	1.11E-02	2.15E+02
Ozone depletion (kg CFC-11 eq)	1.55E-05	5.15E-06	3.31E-08	0	2.67E-07	2.00E-06	8.34E-05	6.44E-05	1.87E-06	0	1.33E-07	7.65E-09	1.73E-04
Eutrophication (kg N eq)	2.82E-01	4.41E-02	5.20E-04	0	2.72E-02	2.01E-02	1.32E+00	4.97E-01	1.18E+00	0	3.76E-04	3.49E-03	3.38E+00
Acidification (kg SO2 eq)	1.05E+00	8.95E-01	9.83E-04	0	2.81E-02	1.35E-01	7.80E+00	6.10E+00	1.99E-01	0	3.67E-03	5.74E-04	1.62E+01
Respiratory effects (kg PM2.5 eq)	2.01E-01	5.42E-02	1.11E-04	0	4.81E-03	2.44E-02	1.02E+00	3.58E-01	1.03E-02	0	4.28E-04	5.88E-05	1.68E+00
Global warming (kg CO2 eq)	1.59E+02	5.73E+01	5.05E-01	0	3.48E+00	3.27E+01	8.75E+02	1.55E+03	3.19E+01	0	6.64E-01	1.65E+00	2.71E+03
Additional environmental information													
Fossil fuel depletion (MJ surplus)	1.65E+02	1.06E+02	3.21E-01	0	2.91E+00	7.51E+01	1.09E+03	1.98E+03	3.67E+01	0	1.28E+00	1.07E-01	3.47E+03
Ecotoxicity (CTUe)	4.40E+02	3.10E+01	5.87E-02	0	7.49E+01	2.78E+01	1.89E+03	1.16E+02	1.50E+02	0	8.55E-02	5.37E-01	2.73E+03
Carcinogenics (CTUh)	2.83E-06	2.85E-08	4.19E-10	0	2.64E-07	1.67E-07	1.14E-05	2.95E-06	3.14E-06	0	1.90E-10	3.24E-09	2.08E-05
Non carcinogenics (CTUh)	5.92E-05	2.21E-06	1.05E-08	0	3.33E-06	2.94E-06	2.46E-04	4.81E-05	6.39E-05	0	3.17E-08	1.97E-08	4.26E-04
Resource use indicators													
Renewable primary energy used as energy carrier (fuel) (MJ, LHV)	2.29E+02	1.30E+00	7.28E-03	0	7.02E+01	2.54E+01	9.23E+02	2.32E+03	5.18E+01	0	1.44E-02	3.71E-02	3.62E+03
Renewable primary resources with energy content used as material (MJ, LHV)	1.00E+01	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	4.01E+01	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	5.02E+01
Total use of renewable primary resources with energy content (MJ, LHV)	2.39E+02	1.30E+00	7.28E-03	0	7.02E+01	2.54E+01	9.63E+02	2.32E+03	5.18E+01	0	1.44E-02	3.71E-02	3.67E+03
Non-renewable primary resources used as an energy carrier (fuel) (MJ, LHV)	2.06E+03	7.46E+02	2.27E+00	0	3.29E+01	4.76E+02	1.13E+04	2.78E+04	5.09E+02	0	8.96E+00	9.66E-01	4.30E+04
Non-renewable primary resources with energy content used as material (MJ, LHV)	1.25E+02	0.00E+00	0.00E+00	0	1.15E+00	1.82E+02	4.99E+02	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	8.07E+02
Total use of non-renewable primary resources with energy content (MJ, LHV)	2.19E+03	7.46E+02	2.27E+00	0	3.40E+01	6.58E+02	1.18E+04	2.78E+04	5.09E+02	0	8.96E+00	9.66E-01	4.38E+04
Secondary materials (kg)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Recovered energy (MJ, LHV)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water resources (m3)	1.01E+03	3.51E+00	5.38E-04	0	1.50E+01	1.10E+02	4.06E+03	3.33E+01	4.62E+01	0	1.51E-03	6.47E-04	5.28E+03
Abiotic depletion potential, fossil (MJ, LHV)	1.93E+03	7.43E+02	2.24E+00	0	2.89E+01	6.31E+02	1.07E+04	1.92E+04	3.53E+02	0	8.91E+00	8.32E-01	3.37E+04
Output flows and waste category indicators													
Hazardous waste disposed (kg)	7.87E-04	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	3.15E-03	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	3.94E-03
Non-hazardous waste disposed (kg)	8.78E-05	0.00E+00	2.60E-01	0	2.99E-01	5.58E+00	2.22E+01	0.00E+00	0.00E+00	0	0.00E+00	5.28E+00	3.36E+01
High-level radioactive waste, conditioned, to final repository (kg)	1.29E-01	3.93E-05	1.12E-06	0	9.44E-04	1.11E-02	5.17E-01	3.51E-01	6.39E-03	0	2.21E-06	5.49E-06	1.02E+00
Intermediate- and low-level radioactive waste, conditioned, to final repository (kg)	7.52E-02	4.01E-05	3.67E-06	0	4.97E-04	7.16E-03	3.01E-01	1.18E+00	2.14E-02	0	7.29E-06	1.83E-05	1.58E+00
Components for re-use (kg)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Materials for recycling (kg)	0.00E+00	0.00E+00	9.71E-01	0	0.00E+00	0.00E+00	3.89E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	4.86E+00
Materials for energy recovery (kg)	0.00E+00	0.00E+00	6.35E-02	0	0.00E+00	0.00E+00	2.54E-01	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	3.17E-01
Exported energy (MJ, LHV)	0.00E+00	0.00E+00	1.87E-01	0	0.00E+00	0.00E+00	7.47E-01	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	9.33E-01
Carbon emissions and removals													
Biogenic Carbon Removal from Product (kg CO2)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Biogenic Carbon Emission from Product (kg CO2)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Biogenic Carbon Removal from Packaging (kg CO2)	3.47E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	1.39E+01	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	1.74E+01
Biogenic Carbon Emission from	0.00E+00	0.00E+00	1.84E+00	0	0.00E+00	0.00E+00	8.65E+00	0.00E+00	0.00E+00	0	0.00E+00	3.26E-01	1.08E+01

Packaging (kg CO2)													
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes (kg CO2)	0.00E+00	0.00E+00	8.12E-02	0	0.00E+00	0.00E+00	3.25E-01	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	4.06E-01
Calcination Carbon Emissions (kg CO2)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Carbonation Carbon Removals (kg CO2)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00
Carbon Emissions from Combustion of Waste from Renewable and Non-Renewable Sources used in Production Processes (kg CO2)	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓ NSF
	Transparency Report (EPD)
3rd-party verified	✓ NSF

Validity: 08/31/2024 – 08/30/2029
TOTO – 20240831 – 001

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Jack Geibig (Ecoform) on behalf of NSF according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; the reference PCR; and ISO 14025:2006.

Ecoform, LLC
11903 Black Road
Knoxville, TN 37932
(865) 850-1883
www.ecoform.com

NSF International
P.O Box 130140, 789 N.Dixboro Road,
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

NSF Certified Environmental Product Declaration www.nsf.org

SUMMARY

Reference PCR
SM Part B: Electronic bidet seats, v1.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit
One electronic bidet seat in an average residential environment over the estimated service life of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent and USLCI databases

In accordance with ISO 14044 and the referenced PCR, the life cycle assessment was conducted by Sustainable Minds and critically reviewed by Jack Geibig (Ecoform) on behalf of NSF.

Public LCA
LCA background report of TOTO WASHLET S7, 2024

TOTO USA
1155 Southern Road
Morrow, GA 30260
www.totousa.com

Contact us

© 2024 | The SM Transparency Report [EPD]™ Program is operated by Sustainable Minds® (www.sustainableminds.com) | Privacy policy

LCA & material health results & interpretation

WASHLET® S7

LCA results & interpretation | EPD additional content | Material health

Evaluation programs

Declare

Declare labels are issued to products disclosing ingredient inventory, sourcing, and end of life options. Declare labels are based on the Manufacturers Guide to Declare, administered by the International Living Future Institute.

How it works

Material ingredients are inventoried and screened against the Living Building Challenge (LBC) Red List which represents the 'worst in class' materials, chemicals, and elements known to pose serious risks to human health and the greater ecosystem.

The Declare product database and label are used to select products that meet the Living Building Challenge's stringent materials requirements, streamlining the materials specification and certification process.

Assessment scope and results

Declare™

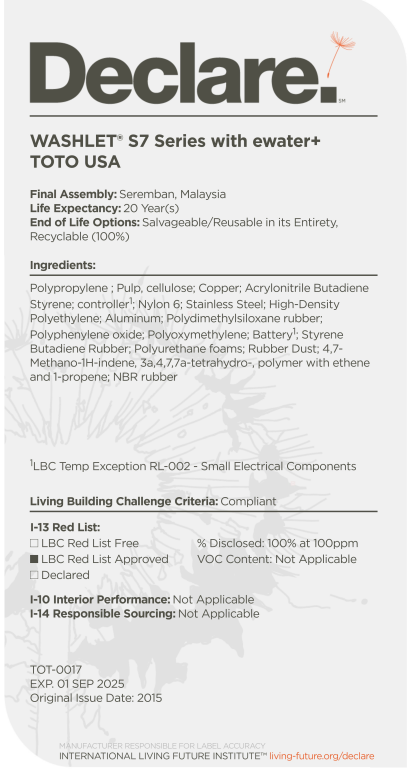
Inventory threshold: 100 ppm

Declare level:
The Declare product database and label are used to select products that meet the LBC's stringent materials requirements, streamlining the materials specification and certification process.

- LBC Red List Free
- LBC Red List Approved
- Declared

Click the label to see the full declaration.

WASHLET® S7 Series with EWATER+



Declare.

WASHLET® S7 Series with ewater+
TOTO USA

Final Assembly: Seremban, Malaysia
Life Expectancy: 20 Year(s)
End of Life Options: Salvageable/Reusable in its Entirety, Recyclable (100%)

Ingredients:

Polypropylene ; Pulp, cellulose; Copper; Acrylonitrile Butadiene Styrene; controller[1]; Nylon 6; Stainless Steel; High-Density Polyethylene; Aluminum; Polydimethylsiloxane rubber; Polyphenylene oxide; Polyoxymethylene; Battery[1]; Styrene Butadiene Rubber; Polyurethane foams; Rubber Dust; 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro-, polymer with ethene and 1-propene; NBR rubber

[1]LBC Temp Exception RL-002 - Small Electrical Components

Living Building Challenge Criteria: Compliant

I-13 Red List:
☐ LBC Red List Free
■ LBC Red List Approved
☐ Declared

% Disclosed: 100% at 100ppm
VOC Content: Not Applicable

I-10 Interior Performance: Not Applicable
I-14 Responsible Sourcing: Not Applicable

TOT-0017
EXP. 01 SEP 2025
Original Issue Date: 2015

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY
INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare

What's in this product and why

Declare level

'Living Building Challenge Compliant' is achieved when the product contains Red List ingredients that have been given a temporary exception by the Living Building Challenge due to current market limitations.

What's in the product and why

The electronics used for flush valve operation include circuit board components. The controller, battery, and sensor allow for a self-powered hydroelectric flush valve system while also maintaining a true mechanical flush override. The electronic components are contained within the flush valve body and do not represent any hazards to the user.

Where it goes at the end of its life

TOTO encourages consumers to recycle their used washlet and washlet parts. Contact your local municipality for recycling programs.

How we're making it healthier

Using a gentle stream of warm-aerated water, WASHLET® cleans the user better and more thoroughly than the paper alternative, thereby reducing harmful environmental waste products. WASHLET® with cleaning functions like PREMIST® and EWATER+® reduce the frequency of cleaning and the need for harsh chemicals that can be harmful to our ecosystem.

PREMIST® sprays the bowl before use, and EWATER+® sprays the bowl after each use, preventing waste buildup to keep the bowl clean. It offers a refreshing, comfortable way to cleanse. The integrated technology helps keep the toilet bowl clean without harsh chemicals, which benefits the environment.

See how we make it greener

References

Declare

TOTO USA, Declare label for WASHLET® S7 Series with EWATER+

Manufacturer's Guide to Declare

A comprehensive guide providing information about the program, the assessment methodology, how to submit material data to obtain a Declare label and how they are used to meet the Health & Happiness and Materials Petals of the Living Building Challenge.

Rating systems

LEED BD+C: New Construction | v4 - LEED v4
Building product disclosure and optimization
Material Ingredients

Credit value options — 1 product each

1. Reporting | 2. Optimization | 3. Supply Chain Optimization

LEED BD+C: New Construction | v4.1 - LEED v4.1
Materials and resources
Material Ingredients

Credit value options — 1 product each

1. Reporting | 2. Optimization | 3. Supply Chain Optimization

Living Building Challenge
Materials petals imperatives

10. Red List Free | 12. Responsible Industry | 13. Living Economy Sourcing

WELL Building Standard®
Air and Mind Features

X07 Materials Transparency

X08 Materials Optimization

Collaborative for High Performance Schools National Criteria
EQ C7.1 Material Health Disclosures

Performance Approach — 2 points

Prescriptive Approach — 2 points

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓ NSF
Transparency Report (EPD)	
3rd-party verified	✓ NSF

Validity: 08/31/2024 – 08/30/2029
TOTO – 20240831 – 001

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Jack Geibig (Ecoform) on behalf of NSF according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; the reference PCR; and ISO 14025:2006.

Ecoform, LLC
11903 Black Road
Knoxville, TN 37932
(865) 850-1883
www.ecoform.com

NSF International
P.O Box 130140, 789 N.Dixboro Road,
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

Certified Environmental Product Declaration
www.nsf.org

SUMMARY

Reference PCR
SM Part B: Electronic bidet seats, v1.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit
One electronic bidet seat in an average residential environment over the estimated service life of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent and USLCI databases

In accordance with ISO 14044 and the referenced PCR, the life cycle assessment was conducted by Sustainable Minds and critically reviewed by Jack Geibig (Ecoform) on behalf of NSF.

Public LCA
LCA background report of TOTO WASHLET S7, 2024

TOTO USA
1155 Southern Road
Morrow, GA 30260
www.totousa.com

Contact us

© 2024 | The SM Transparency Report [EPD]™ Program is operated by Sustainable Minds® (www.sustainableminds.com) | Privacy policy

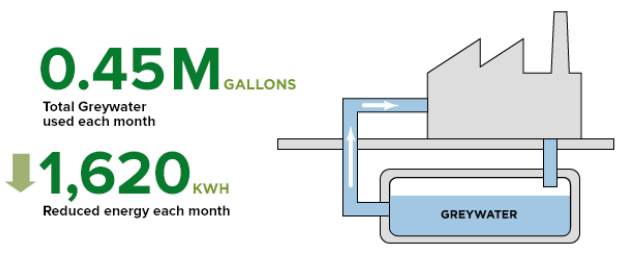
How we make it greener

WASHLET® S7

Expand all

PRODUCTION

TOTO is taking additional steps at its other facilities outside of Japan to reduce potential environmental impacts. For example, TOTO's Morrow plant matches 100% of its electricity usage through Georgia Power Simple Solar and helps grow solar energy. 14 million kilowatt hours of green energy helps reduce 18.5 million pounds of carbon dioxide equivalents each year.



In another example of TOTO's energy savings outside of Japan, 0.45 million gallons per month of greywater is used in TOTO Morrow's operations. 1,620 of kWh in energy per month is reduced due to less potable water.

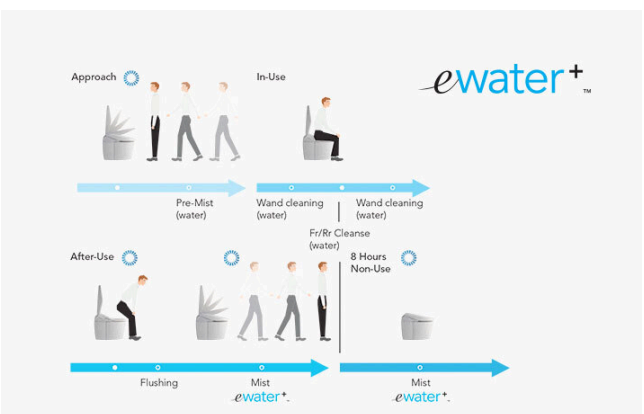
65% of all cardboard used is 100% recycled content.

CONSTRUCTION

UPS parcel shipments are carbon neutral. TOTO is a registered SmartWay® Transport Partner.

USE

EWATER+®
After each flush, EWATER+ mists on the wand and toilet bowl, reducing the need for harsh cleaning chemicals.



Cut down on toilet paper
Introducing an electronic bidet seat can reduce the need for toilet paper or eliminate it entirely, thereby avoiding the emissions associated with toilet paper production.

GLOBAL INITIATIVES

TOTO's recognition on the **CDP A List** underscores its leadership in environmental transparency and effectiveness. As a top performer among over 23,000 companies in the CDP's premier environmental disclosure system in 2023, TOTO stands out by ranking in the elite 1.74% with an A rating. This highlights TOTO's dedication to reducing carbon emissions and advancing water conservation, affirming its substantial role in global environmental stewardship and commitment to high ecological standards.

As part of TOTO's initiative to alleviate water stress through the widespread adoption of water-saving products, they avoided **1.00 billion m^3 of water** emissions during product use when compared with the case where products from 2005 continued to be used.

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

TOTO's strict environmental objectives, aligned with the SBTi's "1.5°C target", highlight its proactive strategy to limit global warming in accordance with the Paris Agreement's most ambitious standards. These objectives are integral to TOTO's broader plan to reach carbon neutrality by 2050.

SM Transparency Report (EPD)™ + Material Health Overview™

EPD	LCA
3rd-party reviewed	✓ NSF
	Transparency Report (EPD)
3rd-party verified	✓ NSF

Validity: 08/31/2024 – 08/30/2029
TOTO – 20240831 – 001

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Jack Geibig (Ecoform) on behalf of NSF according to ISO 14044; ISO 21930:2017; SM Part A: LCA calculation rules and report requirements, 2023; the reference PCR; and ISO 14025:2006.

Ecoform, LLC
11903 Black Road
Knoxville, TN 37932
(865) 850-1883
www.ecoform.com

NSF International
P.O Box 130140, 789 N.Dixboro Road,
Ann Arbor, MI 48105, USA
www.nsf.org
734 769 8010

Certified Environmental Product Declaration
www.nsf.org

SUMMARY

Reference PCR
SM Part B: Electronic bidet seats, v1.0

Regions; system boundaries
North America; Cradle-to-grave

Functional unit
One electronic bidet seat in an average residential environment over the estimated service life of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent and USLCI databases

In accordance with ISO 14044 and the referenced PCR, the life cycle assessment was conducted by Sustainable Minds and critically reviewed by Jack Geibig (Ecoform) on behalf of NSF.

Public LCA
LCA background report of TOTO WASHLET S7, 2024

TOTO USA
1155 Southern Road
Morrow, GA 30260
www.totousa.com

Contact us

© 2024 | The SM Transparency Report [EPD]™ Program is operated by Sustainable Minds® (www.sustainableminds.com) | Privacy policy