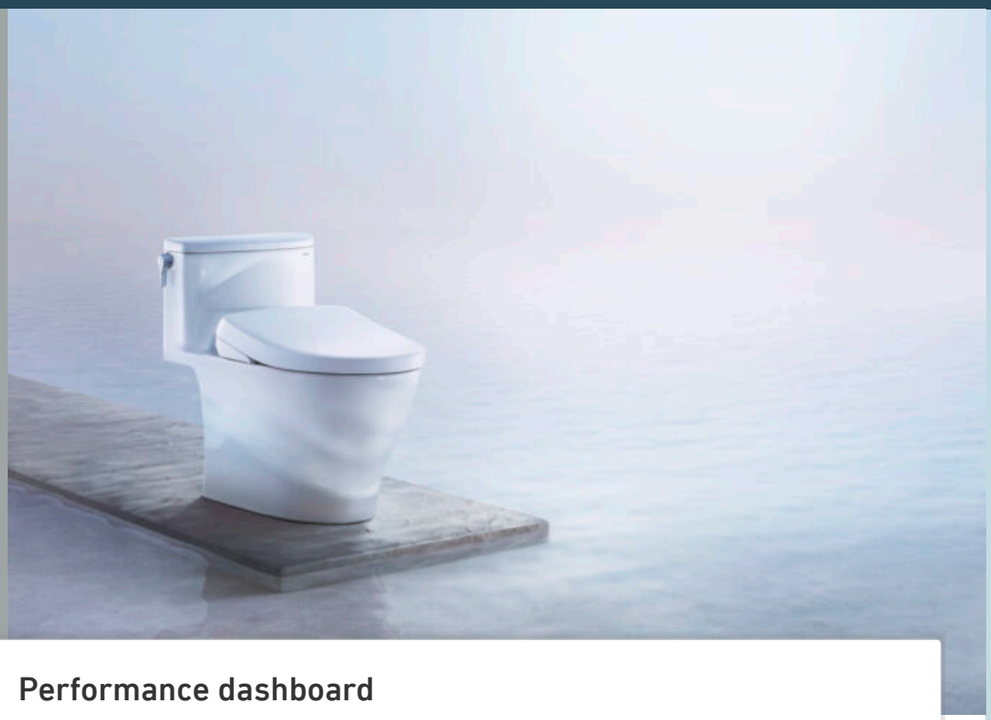
TOTO®

WASHLET® T1SW2491

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

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

Adjustable spray position, water temperature, and water pressure

Tank type water heater and automatic air deodorizer

Heated seat and warm air dryer with temperature control settings

Luxury remote

Visit TOTO for more product information:

WASHLET® T1SW2491 - TOTO Washlet Elongated Bidet Seat with SoftClose Lid

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.

Certification & rating systems:

IAPMO

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

MasterFormat® 22 41 13.19
Product specifications: WASHLET® T1SW2491

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

See LCA, interpretation & rating systems

IAPMO

SM Transparency Report (EPD)™

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

Validity: 04/24/2025 – 04/23/2030
SM-TOTO – 20250424– 001

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.

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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 Developer 9.6; 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 T1SW2491, 2025

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LCA results & interpretation

WASHLET® T1SW2491

LCA results & interpretation | EPD additional content

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 and batteries 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.

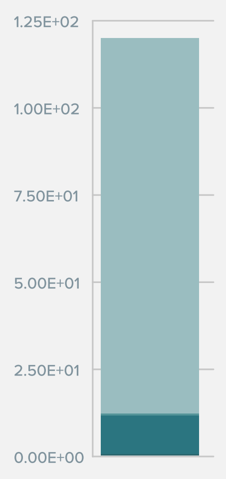
Manufacturing data

Manufacturing data has been collected and compiled for TOTO Malaysia and TOTO Thailand.
Data reporting period: 2024.

Material composition greater than 1% by weight

MATERIAL	% WT
Cardboard packaging	33.54%
Polypropylene	29.51%
Copper	6.64%
Printed paper	6.26%
Polyphenylene ether	4.20%
Nylon	3.46%
Board electronics	2.51%
Acrylonitrile butadiene styrene	1.91%
Polyphenylene sulfide	1.87%
Polyethylene terephthalate	1.86%
Stainless steel	1.78%
Low density polyethylene	1.66%
Silicone	1.65%
Polyphenylene terephthalate	1.11%
Others	2.03%

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



LIFE CYCLE STAGE	MPTS/FUNC. UNIT
Production	1.20E+01
Construction	6.46E-01
Use	1.06E+02
End of life	6.68E-02
Total impacts = 1.19E+02 mPts	

What's causing the greatest impacts

All life cycle stages

The use stage [B1-B7] accounts for the majority of impacts across all environmental indicators. Within the use phase, environmental impacts are primarily driven by the product replacement [B4], operational energy use [B6], and operational water use [B7] modules. B4 module dominates the results for five impact categories: eutrophication, carcinogens, non carcinogencis, respiratory impacts, and ecotoxicty, due to the necessity to consider an additional four products as replacements. B6 contributes the most to other impact categories: ozone depletion, global warming, smog, acidification, 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.

Notable impacts also stem from the production (A1-A3) stage, product distribution (A4), product maintenance (B2), and product repair (B3) modules. 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, contributing to about half of the total A1 impacts. Remaining impacts are distributed across various components. 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 from manufacturing facilities to the US distribution centers contributes the most to smog, acidification, and eutrophication impacts. The final transport to end users, via passenger pick up from the outlets, dominates the impacts in other impact categories in this stage.

Use stage [B1-B7]

Operational energy use [B6] dominates five TRACI impact categories, contributing most to global warming (~57%), ozone depletion (~46%), smog (~45%), acidification (~52%), and fossil fuel depletion (~57%) in the overall life cycle. These impacts stem entirely from the washlet's electricity consumption over its service life. 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.

Product replacements [B4] dominates impacts in the use stage across other five impact categories: eutrophication (~37%), carcinogenics (~49%), non-carcinogenics (59%), respiratory effects (~55%), and ecotoxicity(~66%). Over a 75-year service life, four product replacements are required, each involving manufacturing, resource extraction, and waste management. These cycles significantly contribute to environmental burdens by generating emissions and chemical releases that impact ecosystems, human health, and air and water quality. The repeated production and disposal processes amplify these effects across multiple impact categories.

Operational water use [B7] also shows significant impacts to the overall life cycle, mainly in eutrophication (~34%), carcinogenics (~15%), non-carcinogenics (~15%), and ecotoxicity (~6%).

End-of-life stage [C1-C4]

End-of-life stages contribute minimal impacts to the overall life cycle impacts. Impacts stem from transportation to landfill and landfill disposal. The product is manually removed at the end of life, so there are no activities associated with dismantling of the product.

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 514 W for 30 seconds for seat heating, nozzle spraying, and water heating. Then it uses 50 W for seat warming for the remaining 20 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 consuming 28 ml water per use.

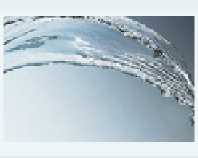
Over the building's ESL of 75 years, the bidet seat is used 109,500 times, consuming 6,685 gallons of water. An electricity factor of 0.000961 kWh per liter of water is used to represent energy for upstream municipal water collection, treatment, supply, and downstream management.

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 Product distribution	(X) B1 Use	(X) C1 Deconstruction/ Demolition
	(X) A2 Transportation	(X) A5 Product 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

Learn about SM Single Score results

Impacts per bidet seat	1.20E+01 mPts	6.46E-01 mPts	1.06E+02 mPts	6.68E-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 end users.	Electricity used during operation and product replacements needed over the building's service life.	Transport to waste processing and disposal of material in a landfill.

TRACI v2.1 results per functional unit

LIFE CYCLE STAGE		PRODUCTION	CONSTRUCTION	USE	END OF LIFE
Ecological damage					
Impact category	Unit				
Global warming	kg CO_2 eq	1.12E+02	1.55E+01	1.81E+03	1.64E+00
Ozone depletion	kg CFC-11 eq	1.14E-05	2.80E-07	1.00E-04	1.25E-08
Acidification	kg SO_2 eq	7.99E-01	5.27E-02	8.55E+00	3.67E-03
Eutrophication	kg N eq	1.99E-01	3.18E-03	1.99E+00	1.86E-03
Human health damage					
Impact category	Unit				
Smog	kg O_3 eq	8.20E+00	1.02E+00	8.16E+01	1.08E-01
Respiratory effects	kg $PM_{2.5}$ eq	1.36E-01	4.69E-03	8.86E-01	4.74E-04
Additional environmental information					
Impact category	Unit				
Carcinogenics	CTU_h	1.51E-06	7.03E-09	1.09E-05	1.94E-09
Non-carcinogenics	CTU_h	4.65E-05	6.91E-07	2.72E-04	1.50E-07
Ecotoxicity	CTU_e	2.57E+02	1.23E+01	1.37E+03	1.00E+00
Fossil fuel depletion	MJ surplus	1.49E+02	2.70E+01	2.40E+03	1.40E+00

References

LCA Background Report
Life Cycle Assessment of TOTO WASHLET® T1SW2491, 2025; SimaPro Developer 9.6; Ecoinvent v3.10, Industry data 2.0, and US-EI 2.2 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

SM Transparency Report (EPD)™

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

Validity: 04/24/2025 – 04/23/2030
SM-TOTO – 20250424– 001

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SM Part B: Electronic bidet seats, v1.0
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EPD additional content

WASHLET® T1SW2491

LCA results & interpretation | EPD additional content

Data

Background This product-specific declaration was created by collecting production data from two TOTO production plants, one in Malaysia and another in Thailand. All unit processes were modeled using primary data. Secondary data sources include those available in Ecoinvent v3.10, Industry data 2.0, and US-El 2.2 databases. Literature data and PCR guidelines were used to fill any data gaps to complete the inventory.

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. Annual resources provided for the assembly of washlet in each plant were evenly distributed based on the annual production quantity. Allocation of reuse, recycling, and energy recovery is not applicable for this study. The model used in this report ensures that the sum of the allocated inputs and outputs of a unit process is equal to the inputs and outputs of the unit process before allocation.

Cut-off criteria allows the exclusion of mass and energy flows below 1% of renewable and nonrenewable energy use, total mass input, and environmental impacts per unit process, with a maximum of 5%. Hazardous and toxic substances must always be reported, regardless of thresholds. 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.

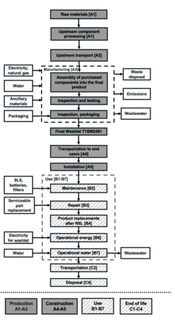
Data sets contributing 5% or more to any environmental impact category

Data set name	Database name & version	Software type & version	Geography	Allocation method
Electricity mix 2021/US US-El U	US-El 2.2	SimaPro Analyst 9.6	United States	By mass
Treatment, sewage, from residence, to wastewater treatment, class 2/US* US-El U	US-El 2.2	SimaPro Analyst 9.6	United States	By mass
Printed wiring board, surface mounted, unspecified, Pb free (SAC) (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 with 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	TOTO Thailand	TOTO Malaysia	Weighted	Unit
Manufacturing plants to TOTO distribution centers)	Road transport in manufacturing country	105.8	94.9	99.4	km
	Sea transport to US	7927	7817	7862	km
	Rail transport to TOTO centers	2190.9			km
Transport to final users	Road transport to Costco outlets	1744.9			km
	Passenger pick-up	50			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 assumes that the electronic bidet seat is 100% landfilled at the end of its life. The product is assumed to be transported 100 km via truck to landfill centers.

Product information

- Meets and exceeds: ASME A112.4.2, ASME A112.18.1/CSA B125.1, UL1431, 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 in both 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.
- Available ecoinvent data sets were manually updated to represent the upstream component production in the supplier country. However, actual manufacturing operations and resources consumed for each component may vary.
- Manufacturing yield has been considered for each upstream component production based on TOTO's internal discussions and outreach with suppliers, but actual material losses during production of components 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 primary information for upstream and downstream transportation distances were also provided.

Completeness: The data included is considered complete. The LCA model included all known material and energy flows. Besides capital equipment, no data was knowingly omitted.

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.

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

Parameters	A1-A3	A4	A5	B1, B5	B2	B3	B4	B6	B7	C1, C3	C2	C4	Total
LCIA results													
Ozone depletion (kg CFC-11 eq)	1.14E-05	2.74E-07	6.42E-09	0	5.90E-08	8.51E-07	4.66E-05	5.13E-05	1.17E-06	0	1.07E-08	1.74E-09	1.12E-04
Global warming (kg CO2 eq)	1.12E+02	1.46E+01	8.98E-01	0	3.70E+00	3.33E-01	5.18E+02	1.24E+03	2.00E+01	0	6.48E-01	9.94E-01	1.94E+03
Smog (kg O3 eq)	8.20E+00	9.62E-01	5.81E-02	0	8.04E-01	1.48E+00	3.73E+01	4.09E+01	1.25E-01	0	9.73E-02	1.02E-02	9.10E+01
Acidification (kg SO2 eq)	7.99E-01	5.07E-02	1.97E-03	0	2.96E-02	1.14E-01	3.42E+00	4.86E+00	1.25E-01	0	3.16E-03	5.08E-04	9.40E+00
Eutrophication (kg N eq)	1.99E-01	2.43E-03	7.50E-04	0	2.72E-02	1.37E-02	8.16E-01	3.96E-01	7.41E-01	0	2.00E-04	1.66E-03	2.20E+00
Respiratory effects (kg PM2.5 eq)	1.36E-01	4.55E-03	2.43E-04	0	5.78E-03	2.21E-02	5.66E-01	2.85E-01	6.49E-03	0	3.95E-04	7.86E-05	1.03E+00
Additional environmental information													
Carcinogenics (CTUh)	1.51E-06	6.37E-09	6.64E-10	0	4.15E-07	8.82E-08	6.07E-06	2.35E-06	1.97E-06	0	1.39E-10	1.80E-09	1.24E-05
Non-carcinogenics (CTUh)	4.65E-05	6.52E-07	3.95E-08	0	3.48E-06	1.31E-06	1.89E-04	3.83E-05	4.01E-05	0	2.86E-08	1.22E-07	3.20E-04
Ecotoxicity (CTUe)	2.57E+02	1.21E+01	1.90E-01	0	7.78E+01	2.36E+01	1.08E+03	9.27E+01	9.42E+01	0	8.36E-02	9.19E-01	1.64E+03
Fossil fuel depletion (MJ surplus)	1.49E+02	2.62E+01	7.21E-01	0	3.16E+00	3.16E+00	7.10E+01	1.58E+03	2.30E+01	0	1.21E+00	1.82E-01	2.58E+03
Resource use indicators													
Renewable primary energy used as energy carrier (fuel) (MJ, LHV)	2.05E+02	6.74E-01	1.52E-02	0	7.03E+01	2.32E+01	8.22E+02	1.85E+03	3.25E+01	0	1.61E-02	3.44E-02	3.00E+03
Renewable primary resources with energy content used as material (MJ, LHV)	7.50E+00	0	0	0	0	0	3.00E+01	0	0	0	0	0	3.75E+01
Total use of renewable primary resources with energy content (MJ, LHV)	2.12E+02	6.74E-01	1.52E-02	0	7.03E+01	2.32E+01	8.52E+02	1.85E+03	3.25E+01	0	1.61E-02	3.44E-02	3.04E+03
Non-renewable primary resources used as an energy carrier (fuel) (MJ, LHV)	1.54E+03	1.86E+02	5.06E+00	0	3.43E+01	4.88E+02	6.96E+03	2.22E+04	3.19E+02	0	8.48E+00	1.45E+00	3.17E+04
Non-renewable primary resources with energy content used as material (MJ, LHV)	1.31E+02	0	0	0	1.19E+00	2.11E+02	5.25E+02	0	0	0	0	0	8.68E+02
Total use of non-renewable primary resources with energy content (MJ, LHV)	1.67E+03	1.86E+02	5.06E+00	0	3.55E+01	6.99E+02	7.48E+03	2.22E+04	3.19E+02	0	8.48E+00	1.45E+00	3.26E+04
Secondary materials (kg)	0	0	0	0	0	0	0	0	0	0	0	0	0
Renewable secondary fuels (MJ, LHV)	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-renewable secondary fuels (MJ, LHV)	0	0	0	0	0	0	0	0	0	0	0	0	0
Recovered energy (MJ, LHV)	0	0	0	0	0	0	0	0	0	0	0	0	0
Use of net fresh water resources (m3)	6.08E+02	2.45E+00	7.43E-02	0	2.15E+01	9.99E+01	2.44E+03	2.65E+01	2.90E+01	0	7.10E-02	1.97E-01	3.23E+03
Abiotic depletion potential, fossil (MJ, LHV)	1.52E+03	1.85E+02	5.04E+00	0	3.27E+01	6.74E+02	6.89E+03	2.22E+02	2.22E+02	0	8.46E+00	1.40E+00	2.49E+04
Output flows and waste category indicators													
Hazardous waste disposed (kg)	6.79E-04	0	0	0	0	0	2.72E-03	0	0	0	0	0	3.39E-03
Non-hazardous waste disposed (kg)	7.58E-05	0	4.98E-01	0	3.08E-01	5.90E+00	2.16E+01	0	0	0	0	4.90E+00	3.32E+01
High-level radioactive waste, conditioned, to final repository (kg)	6.73E-04	3.88E-06	1.02E-07	0	1.34E-04	1.08E-04	2.71E-03	2.01E-02	2.87E-04	0	1.15E-07	2.13E-07	2.39E-02
Intermediate- and low-level radioactive waste, conditioned, to final repository (kg)	2.12E-03	1.14E-05	2.41E-07	0	2.90E-05	2.51E-04	8.51E-03	4.47E-02	6.39E-04	0	2.65E-07	5.36E-07	5.63E-02
Components for re-use (kg)	0	0	0	0	0	0	0	0	0	0	0	0	0
Materials for recycling (kg)	0	0	2.20E+00	0	0	0	8.80E+00	0	0	0	0	0	1.10E+01
Materials for energy recovery (kg)	0	0	1.21E-02	0	0	0	4.86E-01	0	0	0	0	00	6.07E-01
Exported energy (MJ, LHV)	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon emissions and removals													
Biogenic Carbon Removal from Product (kg CO2)	0	0	0	0	0	0	0	0	0	0	0	0	0
Biogenic Carbon Emission from Product (kg CO2)	0	0	0	0	0	0	0	0	0	0	0	0	0
Biogenic Carbon Removal from Packaging (kg CO2)	5.92E+00	0	0	0	0	0	2.37E+01	0	0	0	0	0	2.96E+01
Biogenic Carbon Emission from Packaging (kg CO2)	0	0	4.95E+00	0	0	0	2.37E+01	0	0	0	0	9.74E-01	2.96E+01

Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes (kg CO2)	0	0	0	0	0	0	0	0	0	0	0	0	0
Calcination Carbon Emissions (kg CO2)	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbonation Carbon Removals (kg CO2)	0	0	0	0	0	0	0	0	0	0	0	0	0
Carbon Emissions from Combustion of Waste from Renewable and Non-Renewable Sources used in Production Processes (kg CO2)	0	0	0	0	0	0	0	0	0	0	0	0	0

SM Transparency Report (EPD)™

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

Validity: 04/24/2025 – 04/23/2030
SM-TOTO – 20250424– 001

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.

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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 Developer 9.6; 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 T1SW2491, 2025

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Contact us

How we make it greener

WASHLET® T1SW2491

Expand all

PRODUCTION

Toto's ESG philosophy captures the inclusiveness of supply chain labor and risk mitigation. We are trusted by our employees to engage in best practices and optimization of human rights impact assessments. Third party audits ensure our continued compliance with these factors for the benefit and wellness of all...The Toto Way.

TRANSPORTATION

CARBON NEUTRAL SHIPMENT ups

SmartWay Transport Partner
Getting There With Cleaner Air

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

GLOBAL INITIATIVES

CDP
DISCLOSURE INSIGHT ACTION
A LIST
2023
CLIMATE

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.

SCIENCE BASED TARGETS
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)™

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