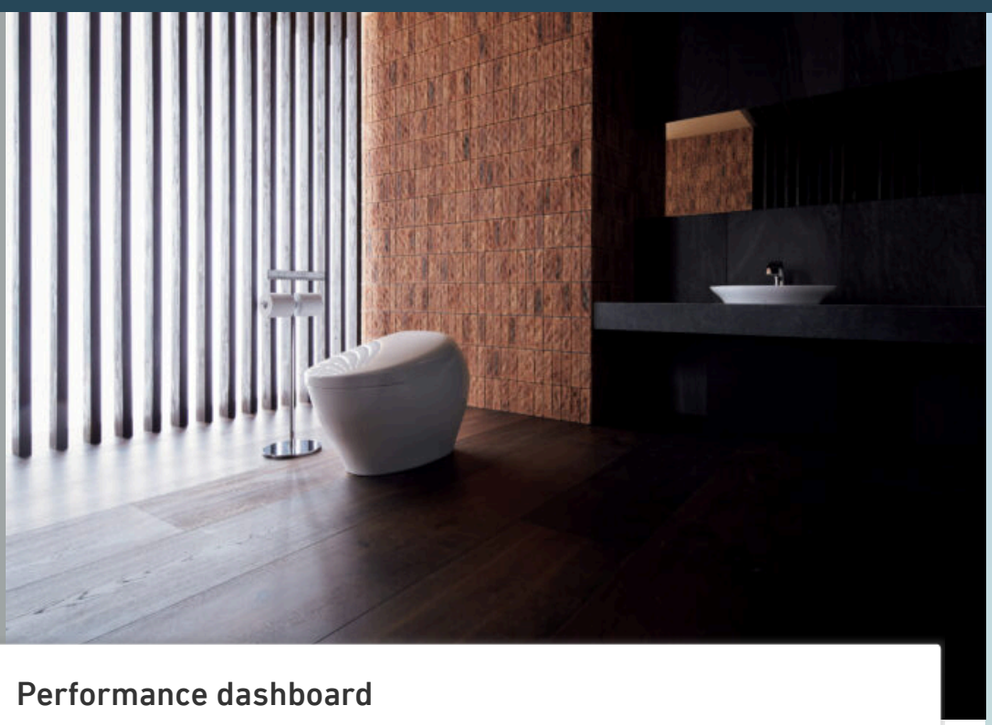
TOTO®

NEOREST®
NX1 & NX2

TOTO's NEOREST Collection offers the most innovative, design-forward array of products available with elegant designs drawn from nature, cutting-edge technology, flawless performance, and extraordinary comfort.

TOTO believes that the bath space should be a relaxing, restorative place where people escape the stresses of daily life, and their everyday bathroom rituals are transformed into enriching experiences.

With its NEOREST Collection, TOTO has brought this design philosophy to its most beautiful and welcoming expression.



Performance dashboard

Features & functionality

Auto-Flush: Touchless TORNADO flushing technology

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.

CEFIONTECT®: a nano-tech glaze that creates a super-slippery, non-porous surface on porcelain, preventing waste from clinging.

TORNADO FLUSH®: Quiet, powerful dual flush (1.28 or 1.0 gpf) with rimless bowl and 2.5"" trapway effectively removes waste and cleans bowl.

Visit TOTO for more product information:

NEOREST® NX1, NX2

Environment & materials

Improved by:

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

Certification & rating systems:

IAPMO

ADA Compliant

CALGreen

WaterSense®

MasterFormat® 22 41 13.13
Product specifications:

NEOREST® NX1
NEOREST®NX2

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

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 – 002

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.

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NSF Certified Environmental Product Declaration www.nsf.org

SUMMARY

Reference PCR
SM Part B: Residential toilets, v3.0

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

Functional unit
One dual flush toilet in an average residential environment, with an electronic bidet seat, over the estimated service life of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.6; ecoinvent and Industry data 2.0 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 NEOREST® NX & WX Toilets, 2024

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Contact us

LCA results & interpretation

NEOREST® NX Dual Flush Toilet

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 dual flush toilet 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 a residential toilet is 20 years.

Maintenance

The toilet requires periodic cleaning, and each cleaning event uses 1.69 fl oz (50mL) of a 1% sodium lauryl sulfate (SLS) solution. The toilet basin, bowl, 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. Each cleaning event uses 0.338 fl oz (10mL) of a 1% sodium lauryl sulfate (SLS) solution.

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 flapper seal, fill valve seal, lid assembly, lid bumpers, seat bumpers, deodorizer assembly, air filter, and flexible hose assembly are assumed to be fully replaced once during the 20-year RSL period as part of regular repairs. At the end of its RSL, the product is assumed to be replaced. Therefore, an additional 2.75 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

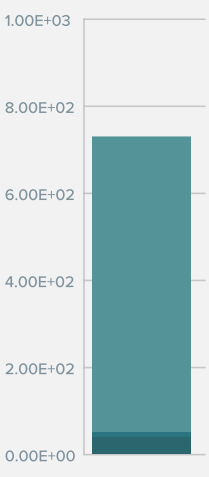
Manufacturing data has been collected at the manufacturing facility in Kokura, Japan.

Data reporting period: 2023

Material composition greater than 1% by weight

MATERIAL	WT%
Ceramics	62.0%
Cardboard packaging	14.1%
Polypropylene (PP)	10.4%
Stainless steel	3.88%
Acrylonitrile butadiene styrene (ABS)	3.29%
Polyphenylene sulfide (PPS)	1.12%
Polyoxymethylene (POM)	1.10%
Others	4.17%

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



LIFE CYCLE STAGE	MPTS/FUNC. UNIT
Production	5.20E+01
Construction	3.41E+00
Use	6.68E+02
End of life	5.07E-01

Total impacts = 7.24E+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 operational energy use [B6] leads the impacts in terms of global warming. The product replacement module [B4] contributes the most to impact results for five evaluated impact categories: ozone depletion, smog, acidification, respiratory effects, and fossil fuel depletion. Operational water use [B7] leads impacts for four impact categories in the overall life cycle: eutrophication, carcinogenics, non-carcinogenics, and ecotoxicity. The production stage [A1-A3] also demonstrates significant impacts across all impact categories. 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 toilet's bidet seat dominate all impact categories in the production stage. The raw materials needed for ceramic production did not contribute significantly to raw material acquisition [A1]. Most of the impacts within manufacturing [A3] stem from energy used during the ceramic manufacturing operations, and there were insignificant impacts from raw material transportation [A2].

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 7% of potential smog impacts. Transportation contributed less than 4% to the remaining impact categories.

Use stage [B1-B7]

Electricity required for bidet operations contributes the most to the impacts for global warming (~34.9%). Product replacement [B4] contributes the most to five impact categories: ozone depletion (~36.2%), smog (~46.1%), acidification (~36.2%), respiratory effects (~51.8%), and fossil fuel depletion (34.7%). Operational water use [B7] leads impacts for four impact categories in the overall life cycle: eutrophication (~92.6%), carcinogenics (~64.2%), non-carcinogenics (~80.4%), and ecotoxicity (~54.2%).

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. The peak wattage for the NEOREST® NX toilet is 1,290 W for 30 seconds for seat heating, nozzle spraying, and water heating. Then it uses 75.6 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 bidet operations including rear cleansing, rear soft cleansing, front cleansing, and wide front cleansing at an average of 0.095 gpm. The duration of each use is assumed to be 0.58 minutes at four uses per day. The bidet seat functionality also features pre-misting and post-misting, plus automatic misting every eight hours. The NEOREST® NX toilet uses 0.8gpf for liquid and 1.0gpf for solids.

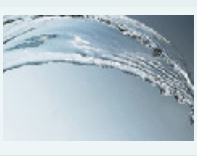
Over the building's ESL of 75 years, the NEOREST® NX toilet consumes 311,787 gallons of water, including from its 109,500 bidet seat uses, 273,750 liquid flushes, and 82,125 solid flushes. An electricity factor of 0.000961 kWh per liter of water is used to represent energy for upstream municipal water 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 residential two-piece toilet	5.20E+01 mPts	3.41E+00 mPts	6.68E+02 mPts	5.06E-01 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

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE

Ecological damage

Impact category	Unit				
Global warming	**kg CO_2 eq**	4.23E+02	6.16E+01	3.86E+03	1.25E+01
Ozone depletion	**kg CFC-11 eq**	2.39E-05	5.44E-06	2.05E-04	1.64E-06
Acidification	**kg SO_2 eq**	2.16E+00	9.05E-01	2.05E+01	4.72E-02
Eutrophication	**kg N eq**	5.17E-01	4.87E-02	3.67E+01	1.42E-02

Human health damage

Impact category	Unit				
Smog	**kg O_3 eq**	2.60E+01	1.96E+01	2.33E+02	1.37E+00
Respiratory effects	**kg $PM_{2.5}$ eq**	3.81E-01	5.55E-02	1.91E+00	5.51E-03

Additional environmental information

Impact category	Unit				
Carcinogenics	**CTU_h**	1.26E-05	3.24E-08	1.31E-04	1.61E-08
Non-carcinogenics	**CTU_h**	1.04E-04	2.31E-06	2.22E-03	4.19E-07
Ecotoxicity	**CTU_e**	8.69E+02	3.15E+01	7.21E+03	2.80E+00
Fossil fuel depletion	**MJ surplus**	6.17E+02	1.11E+02	5.15E+03	1.59E+01

References

LCA Background Report
Life Cycle Assessment of TOTO NEOREST® NX & WX Toilets, 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: Residential toilets, v3.0
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

EPD additional content

NEOREST® NX Dual Flush Toilet

LCA results & interpretation | EPD additional content | Material health

Data

Background This product-specific plant-specific declaration was created by collecting production data from TOTO's plant in Kokura, Japan. All unit processes were modeled using primary data. Secondary data sources include those available in ecoinvent, US-EI 2.2, and industry data 2.0 databases. Literature data was used to fill any data gaps to complete the inventory.

Allocation Annual resources were reported for the dedicated washlet production line, and annual resources used for ceramic production were allocated by mass. Since there are no other co-products, no co-product allocation or allocation of multi-input processes were required. 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 substances 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.

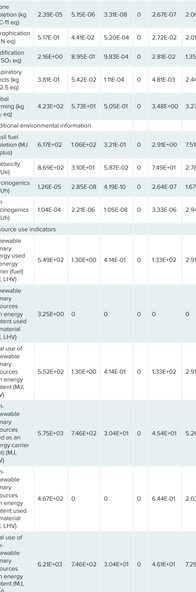
Data sets contributing 5% or more to any environmental impact category

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 (Japan) to GA, USA	Road transport in Japan	689	km
	Sea transport	36,608	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 the discarded product is 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 within the washlet unit are recyclable 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 mixes, 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
Stainless steel	70.50%	29.50%
Corrugated board	66.50%	33.50%
PP, ABS, PPS, POM	15.00%	85.00%

Product information

Product code	ASTM or ANSI product specification
MS902CUMFG, MS903CUMFX	Meets and exceeds: ASME A112.19.2/CSA B45.1, ASME A112.4.2, UL 1431, CSA C22.2 #68 Code compliance with UPC, IPC, NSPC, NPC Canada, and others Certified with IAPMO, EPA WaterSense

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 O2-eq)	2.60E+01	1.94E+01	2.44E-01	0	9.62E-01	1.83E+00	1.29E+02	5.03E+01	5.09E+01	0	1.28E+00	9.25E-02	2.80E+02
Ozone depletion (kg CFC-11 eq)	2.39E-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)	5.17E-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)	2.16E+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)	3.81E-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)	4.23E+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)	6.17E+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)	8.69E+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)	1.26E-05	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)	1.04E-04	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)	5.49E+02	1.30E+00	4.14E-01	0	1.33E+02	2.91E+01	1.51E+03	2.28E+03	1.51E+03	0	1.71E-01	1.57E-01	6.02E+03
Renewable primary resources with energy content used as material (MJ, LHV)	3.25E+00	0	0	0	0	0	8.95E+00	0	0	0	0	0	1.22E+01
Total use of renewable primary resources with energy content (MJ, LHV)	5.52E+02	1.30E+00	4.14E-01	0	1.33E+02	2.91E+01	1.52E+03	2.28E+03	1.51E+03	0	1.71E-01	1.57E-01	6.03E+03
Non-renewable primary resources used as an energy carrier (fuel) (MJ, LHV)	5.75E+03	7.46E+02	3.04E+01	0	4.54E+01	5.26E+02	1.82E+04	2.72E+04	1.49E+04	0	1.06E+02	5.94E+00	6.76E+04
Non-renewable primary resources with energy content used as material (MJ, LHV)	4.67E+02	0	0	0	6.44E-01	2.03E+02	1.28E+03	0	0	0	0	0	1.96E+03
Total use of non-renewable primary resources with energy content (MJ, LHV)	6.21E+03	7.46E+02	3.04E+01	0	4.61E+01	7.29E+02	1.95E+04	2.72E+04	1.49E+04	0	1.06E+02	5.94E+00	6.95E+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)	2.25E+03	3.51E+00	1.35E+00	0	2.08E+01	1.38E+02	6.21E+03	3.26E+01	1.35E+03	0	1.79E-02	2.95E-03	1.00E+04
Abiotic depletion potential, fossil (MJ, LHV)	5.73E+03	7.43E+02	2.99E+01	0	4.24E+01	7.00E+02	1.82E+04	1.88E+04	1.03E+04	0	1.06E+02	5.38E+00	5.47E+04
Output flows and waste category indicators													
Hazardous waste disposed (kg)	7.87E-04	0	0	0	0	0	2.16E-03	0	0	0	0	0	2.95E-03
Non-hazardous waste disposed (kg)	8.78E-05	0	1.76E+00	0	2.91E-01	5.82E+00	1.77E+02	0	0	0	0	6.27E+01	2.48E+02
High-level radioactive waste, conditioned, to final repository (kg)	2.01E-03	1.13E-05	2.10E-06	0	1.59E-05	1.34E-04	5.58E-03	2.47E-02	1.34E-02	0	1.85E-06	1.65E-06	4.58E-02
Intermediate- and low-level radioactive waste, conditioned, to final repository (kg)	7.55E-03	2.49E-05	4.55E-06	0	3.49E-05	3.12E-04	2.09E-02	5.50E-02	2.98E-02	0	4.12E-06	3.69E-06	1.14E-01
Components for re-use (kg)	0	0	0	0	0	0	0	0	0	0	0	0	0
Materials for recycling (kg)	2.47E+01	0	8.37E+00	0	0	0	9.08E+01	0	0	0	0	0	1.24E+02
Materials for energy recovery (kg)	0	0	4.30E-01	0	0	0	1.18E+00	0	0	0	0	0	1.61E+00
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)	1.93E+01	0	0	0	0	0	5.31E+01	0	0	0	0	0	7.24E+01
Biogenic Carbon Emission from Packaging (kg CO2)	0	0	1.60E+01	0	0	0	4.43E+01	0	0	0	0	1.06E-01	6.04E+01
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes (kg CO2)	0	0	7.08E-01	0	0	0	1.95E+00	0	0	0	0	0	2.66E+00
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	0	0	0	0	0	0	0	0	0	0	0	0	0

Processes (kg CO_2)	

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 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✓

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NSF Certified Environmental Product Declaration www.nsf.org

SUMMARY

Reference PCR
SM Part B: Residential toilets, v3.0

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

Functional unit
One dual flush toilet in an average residential environment, with an electronic bidet seat, over the estimated service life of the building

LCIA methodology; LCA software; LCI database
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Public LCA
LCA background report of TOTO NEOREST® NX & WX Toilets, 2024

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Contact us

LCA & material health results & interpretation

NEOREST® NX Dual Flush Toilet

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™

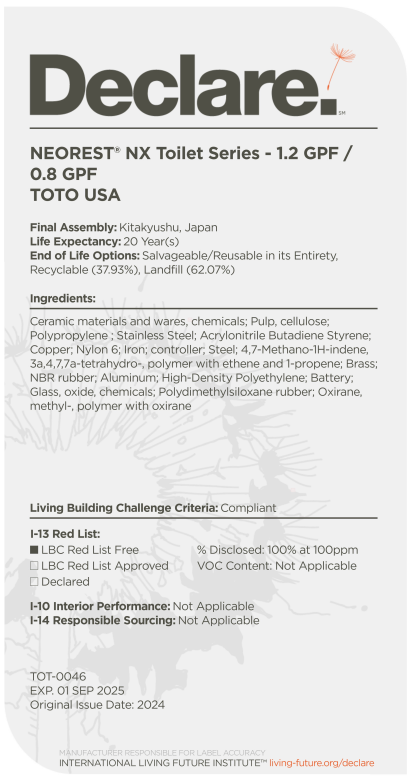
Inventory threshold: 100 ppm

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.

NEOREST® NX Toilet Series, 1.0 GPF / 0.8 GPF



Declare.

NEOREST® NX Toilet Series - 1.2 GPF / 0.8 GPF
TOTO USA

Final Assembly: Kitakyushu, Japan
Life Expectancy: 20 Year(s)
End of Life Options: Salvageable/Reusable in its Entirety, Recyclable (37.93%), Landfill (62.07%)

Ingredients:

Ceramic materials and wares, chemicals; Pulp, cellulose; Polypropylene ; Stainless Steel; Acrylonitrile Butadiene Styrene; Copper; Nylon 6; Iron; controller; Steel; 4,7-Methano-1H-indene, 3a,4,7,7a-tetrahydro-, polymer with ethene and 1-propene; Brass; NBR rubber; Aluminum; High-Density Polyethylene; Battery; Glass, oxide, chemicals; Polydimethylsiloxane rubber; Oxirane, methyl-, polymer with oxirane

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-0046
EXP. 01 SEP 2025
Original Issue Date: 2024

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

LBC Red List Free. We disclose all ingredients and residuals present at or above 100ppm or 0.01 percent. No Red List materials are present in the toilet.

Where it goes at the end of its life

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

How we're making it healthier

TOTO's NEOREST Collection offers the most innovative, design-forward array of products available with elegant designs drawn from nature, cutting-edge technology, flawless performance, and extraordinary comfort. Using a gentle stream of warm-aerated water, its WASHLET® cleans the user better and more thoroughly than the paper alternative, thereby reducing harmful environmental waste products. Its 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 NEOREST® NX Toilet Series, 1.0 GPF / 0.8 GPF

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

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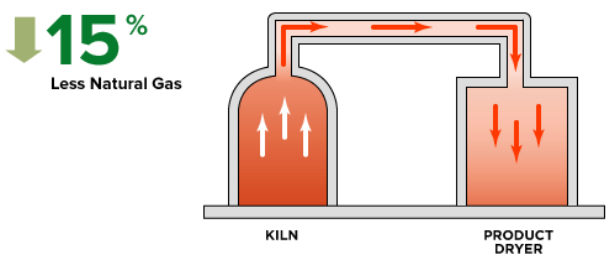
How we make it greener

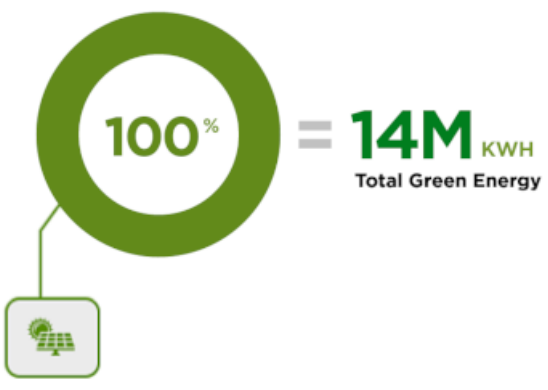
NEOREST® NX Dual Flush Toilet

Expand all

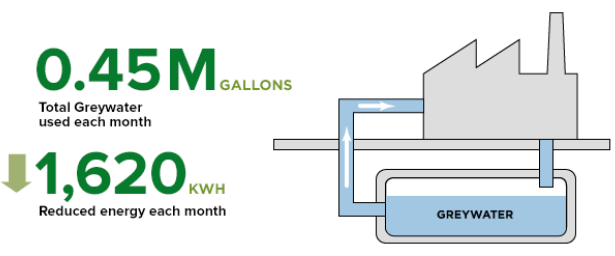
PRODUCTION



Waste heat from the kilns is routed to the product dryer. This reduces 15% natural gas consumption.



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

CARBON NEUTRAL SHIPMENT UPS

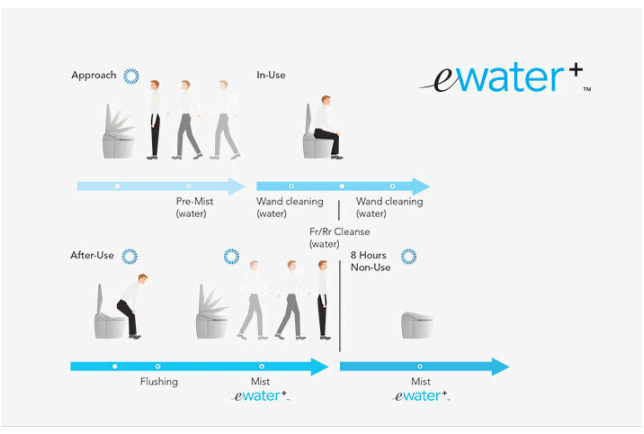
SmartWay Transport Partner
Getting There With Cleaner Air

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

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

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.

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