PROFLO® Calhoun 1500 Series Toilet

PF1500WH, PF1501WH, PF1503WH, PF6110WH, PF6112RWH, PF6112WH,PF6112WHM, PF6114WH, PF6112KWH 1.28gpf, 1.6gpf

Utilizing a gravity flush system to create a powerful flushing action, the WaterSense certified 1.28 gpf version of the Calhoun 1500 Series Toilet uses 20% less water than the current standard while maintaining superior performance. It is constructed of vitreous china to ensure durability and dependability. The toilet installs in a floor mounted configuration, offers an elongated bowl option for extra comfort and multiple tank options to service different rough-ins.

When it comes to quality, PROFLO is uncompromising—treating value and performance as equals. Craftsmanship and style work hand-in-hand to deliver the best possible product. From rough products to finished fixtures, PROFLO products are developed with both presentation and performance in mind.

Performance dashboard

Features & functionality

Available in 1.28 GPF and 1.6 GPF

Gravity-fed Siphon Jet Flush

Flush Valve: 3"

Sanitary bar on bowl for easy cleaning

Quick connect, two-bolt tank-to bowl installation

Visit Ferguson for more product information

PF1500WH, PF1501WH, PF1503WH, PF6110WH, PF6112RWH, PF6112WH, PF6112WHM, PF6114WH, PF6112KWH

Environment & materials

Improved by:

APMO/cUPC

ASME A112.19.2 / CAS B45.1

MaP Rated 1000g

Certification & rating systems:

EPA WaterSense certified

MasterFormat® 22 42 13.13
PROFLO® Calhoun 1500 Series Toilet
Technical Data Sheet

See LCA, interpretation & rating systems

SM Transparency Report (EPD)™

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

This environmental product declaration (EPD) was externally verified by Industrial Ecology Consultants, according to ISO 21930:2017; SM Part A; SM Part B: Residential toilets; and ISO 14025:2006.

SUMMARY

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

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

Functional unit
One residential toilet in an average

FERGUSON
751 Lakefront Commons
Newport News, VA 23606
(800) 221-3379

Contact us

Validity: 08/13/2024 – 08/12/2029
FER – 20240813 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✔

Industrial Ecology Consultants
35 Bracebridge Rd
Newton, MA 02459
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Industrial Ecology Consultants

residential environment used over the estimated service of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent v3.10 and US-EI 2.2 databases

Public LCA
LCA background report of Ferguson single handle lavatory faucets & residential two-piece toilets

LCA results & interpretation

PROFLO® Calhoun 1500 Series Toilet

Toilet with 1.28gpf tank | Toilet with 1.6gpf tank | EPD additional content

Scope and summary

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

Functional unit

One residential toilet in an average residential environment used over the estimated service 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 toilet is 20 years. This two-piece toilet is comprised of a toilet bowl, toilet tank, and toilet seat, weighing a total of 45.5 kg.

Manufacturing data

Manufacturing data has been collected at the manufacturing facility in China for the data reporting period of 2023.

Maintenance

The cleaning of the toilet involves cleaning it twice a month, using 50mL of a 1% sodium lauryl sulfate (SLS) solution per clean for 75 years, which is the building estimated service life. The use of 50 mL/clean over 24 cleans/year for 75 years gives a total of 90L of solution. Using a density of 1.01kg/L for a 1% SLS solution, 90.9kg of solution will be needed over the course of 75 years. Therefore, 0.9kg of SLS plus 90kg of water were included in the model.

Repair

The flush handle, rubber ring, and fill valve seals in the tank are assumed to be fully replaced once during each reference service life (RSL) period of 20 years. The old components are assumed to be 100% landfilled with a waste transportation distance of 100km.

What's causing the greatest impacts

All life cycle stages

Environmental performance is driven primarily by the use stage. The energy consumed in municipal water systems for upstream water collection and supply, and downstream treatment, contributes to about 75% of the impacts for the 1.28gpf toilet and about 78% of impacts for the 1.6gpf toilet. The production stage also shows considerable impacts, driven by the consumption of electricity and natural gas during ceramics manufacturing. Replacement of the toilet at the end of its reference service life also contributes significantly to impacts.

Production and installation

The production and installation stages account for only less than 5% of global warming potential. Energy consumed during ceramics manufacturing (tank and bowl) accounts for most of the impacts from manufacturing. Ceramic wastewater contributes significantly to the carcinogenics, non-carcinogenics, and ecotoxicity impact categories.

Use

The use stage itself contributes to ~90% of the impacts. Within the use stage, operational water use dominates the results for all impact categories, followed by the 2.5 replacement toilets required to fulfill the estimated service life of the building.

End of life

The end-of-life stage accounts for a relatively low portion of the results for all impact categories, at less than 2% in all categories. This is driven by the transportation of toilets to landfill at the end of their useful life.

Replacement

After the end of the toilet's reference service life, it is assumed to be fully replaced. An additional 2.75 replacements are included over the building's ESL of 75 years. No auxiliary materials, electricity, or other hardware components are consumed during the replacement.

Operational water use

The amount of water used by the toilet depends on its flush rate. The 1.28gpf toilet is assumed to be used 13 times per day over 75 years, resulting in 455,520 gallons of water over its lifetime. 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

Ferguson has established an EHS system that complies with regulations and serves to educate its team, attaching importance to environmental protection, energy savings and waste reduction, health and safety, and continuous improvement. The have implemented:

- Routine inspection and monitoring of environmental protection facilities in the production process
- Environmental monitoring plans

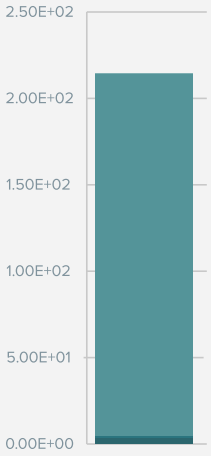
- Waste monitoring
- Improvements to the level of accuracy across all operations

See how we make it greener

Material composition greater than 1% by weight

PART	MATERIAL	%WT.
Product	Ceramic	85-90%
Product	Polypropylene	2-5%
Packaging	Carton, paper inserts and label	2-5%
Product	Acrylonitrile butadiene styrene (ABS)	1-2%
Product	Other	<1%

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



LIFE CYCLE STAGE	MPTS/FUNC. UNIT
Production	3.27E+00
Construction	7.00E-01
Use	2.12E+02
End of life	2.40E-01

Total impacts = 2.16E+02 mPts
per 75 years installed

LCA results

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE
	(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	
Information modules: **Included (X)** | Excluded (MND)*			(X) B6 Operational energy use	
			(X) B7 Operational water use	
				

SM Single Score [mPts/func unit]

Toilet with 1.28 gpf tank	3.27 mPts	0.7 mPts	211.81 mPts	0.24 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Ceramic parts production for the toilet tank and bowl.	Transportation of the product to installation site or consumer and disposal of packaging.	Water consumed during toilet operation.	Transport to waste processing and final disposal of the toilet in a landfill.

TRACI v2.1 results per functional unit - PROFLO® Calhoun 1500 Series Two-piece Toilet 1.28 gpf

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE
− **Ecological damage**				

Impact category	Unit				
Global warming	**kg CO_2 eq**	6.32E+01	1.11E+01	1.25E+03	5.47E+00
Ozone depletion	**kg CFC-11 eq**	1.03E-06	6.00E-07	5.62E-05	1.01E-06
Acidification	**kg SO_2 eq**	2.57E-01	1.73E-01	6.18E+00	2.87E-02
Eutrophication	**kg N eq**	2.40E-02	7.93E-03	1.37E+01	3.40E-03

Human health damage

Impact category	Unit				
Smog	**kg O_3 eq**	3.93E+00	3.42E+00	6.47E+01	8.43E-01
Respiratory effects	**kg $PM_{2.5}$ eq**	4.19E-02	9.69E-03	4.27E-01	3.36E-03

Additional environmental information

Impact category	Unit				
Carcinogenics	**CTU_h**	2.59E-07	3.40E-08	3.76E-05	2.15E-09
Non-carcinogenics	**CTU_h**	5.84E-06	5.15E-07	7.64E-04	2.38E-07
Ecotoxicity	**CTU_e**	5.94E+01	7.72E+00	2.02E+03	9.97E-01
Fossil fuel depletion	**MJ surplus**	8.27E+01	1.94E+01	1.58E+03	9.78E+00

References

LCA Background Report
LCA background report of Ferguson single handle lavatory faucets & residential two-piece toilets, 2024; SimaPro Analyst 9.5; ecoinvent v3; 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 reviewed for conformance to ISO 14025, ISO 21930:2017, and ACLCA PCR Open Standard v1.0 by Jack Geibig, Chair (Ecoform); 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	✓
Transparency Report (EPD)	
3rd-party verified	✓

Validity: 08/13/2024 – 08/12/2029
FER – 20240813 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Industrial Ecology Consultants, according to ISO 21930:2017; SM Part A; SM Part B: Residential toilets; and ISO 14025:2006.

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Industrial Ecology Consultants

SUMMARY

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

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

Functional unit
One residential toilet in an average residential environment used over the estimated service of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent v3.10 and US-EI 2.2 databases

Public LCA
LCA background report of Ferguson single handle lavatory faucets & residential two-piece toilets

FERGUSON
751 Lakefront Commons
Newport News, VA 23606
(800) 221-3379

Contact us

LCA results & interpretation

PROFLO® Calhoun 1500 Series Toilet

Toilet with 1.28gpf tank | Toilet with 1.6gpf tank | EPD additional content

Scope and summary

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

Functional unit

One residential toilet in an average residential environment used over the estimated service 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 toilet is 20 years. This two-piece toilet is comprised of a toilet bowl, toilet tank, and toilet seat weighing a total of 47.2 kg.

Manufacturing data

Manufacturing data has been collected at the manufacturing facility in China for the data reporting period of 2023.

Maintenance

The cleaning of the toilet involves cleaning it twice a month, using 50mL of a 1% sodium lauryl sulfate (SLS) solution per clean for 75 years, which is the building estimated service life. The use of 50 mL/clean over 24 cleans/year for 75 years gives a total of 90L of solution. Using a density of 1.01kg/L for a 1% SLS solution, 90.9kg of solution will be needed over the course of 75 years. Therefore, 0.9kg of SLS plus 90kg of water were included in the model.

Repair

The flush handle, rubber ring, and fill valve seals in the tank are assumed to be fully replaced once during each reference service life (RSL) period of 20 years. The old components are assumed to be 100% landfilled with a waste transportation distance of 100km.

What's causing the greatest impacts

All life cycle stages

Environmental performance is driven primarily by the use stage. The energy consumed in municipal water systems for upstream water collection and supply, and downstream treatment, contributes to about 75% of the impacts for the 1.28gpf toilet and about 78% of impacts for the 1.6gpf toilet. The production stage also shows considerable impacts, driven by the consumption of electricity and natural gas during ceramics manufacturing. Replacement of the toilet at the end of its reference service life also contributes significantly to impacts.

Production and installation

The production and installation stages account for only less than 5% of global warming potential. Energy consumed during ceramics manufacturing (tank and bowl) accounts for most of the impacts from manufacturing. Ceramic wastewater contributes significantly to the carcinogenics, non-carcinogenics, and ecotoxicity impact categories.

Use

The use stage itself contributes to ~90% of the impacts. Within the use stage, operational water use dominates the results for all impact categories, followed by the 2.5 replacement toilets required to fulfill the estimated service life of the building.

End of life

The end-of-life stage accounts for a relatively low portion of the results for all impact categories, at less than 2% in all categories. This is driven by the transportation of toilets to landfill at the end of their useful life.

Replacement

After the end of the toilet's reference service life, it is assumed to be fully replaced. An additional 2.75 replacements are included over the building's ESL of 75 years. No auxiliary materials, electricity, or other hardware components are consumed during the replacement.

Operational water use

The amount of water used by the toilet depends on its flush rate. The 1.6gpf toilet is assumed to be used 13 times per day over 75 years, resulting in 569,400 gallons of water over its lifetime. 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

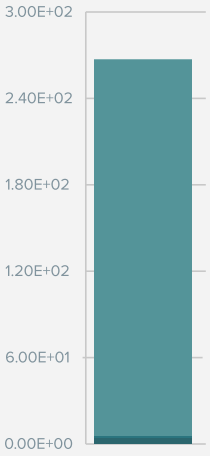
Ferguson has established an EHS system that complies with regulations and serves to educate its team, attaching importance to environmental protection, energy savings and waste reduction, health and safety, and continuous improvement. The have implemented:

- Routine inspection and monitoring of environmental protection facilities in the production process
- Environmental monitoring plans

Material composition greater than 1% by weight

PART	MATERIAL	%WT.
Product	Ceramic	85-90%
Product	Polypropylene	2-5%
Packaging	Carton, paper inserts and label	2-5%
Product	Acrylonitrile butadiene styrene (ABS)	1-2%
Product	Other	<1%

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



LIFE CYCLE STAGE	MPTS/FUNC. UNIT
Production	3.36E+00
Construction	7.90E-01
Use	2.62E+02
End of life	2.50E-01

Total impacts = 2.67E+02 mPts
per 75 years installed

- Waste monitoring
- Improvements to the level of accuracy across all operations

See how we make it greener

LCA results

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE
	(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	
Information modules: **Included (X)** | Excluded (MND)*			(X) B6 Operational energy use	
			(X) B7 Operational water use	
				

SM Single Score [mPts/func unit]

Toilet with 1.6 gpf tank	3.36 mPts	0.79 mPts	262.32 mPts	0.25 mPts
Materials or processes contributing >20% to total impacts in each life cycle stage	Ceramic parts production for the toilet tank and bowl.	Transportation of the product to installation site or consumer and disposal of packaging.	Water consumed during toilet operation.	Transport to waste processing and final disposal of the toilet in a landfill.

TRACI v2.1 results per functional unit - PROFLO® Calhoun 1500 Series Two-piece Toilet 1.6 gpf

LIFE CYCLE STAGE	PRODUCTION	CONSTRUCTION	USE	END OF LIFE
− Ecological damage				

Impact category	Unit				
Global warming	**kg CO_2 eq**	6.51E+01	1.30E+01	1.52E+03	5.67E+00
Ozone depletion	**kg CFC-11 eq**	1.06E-06	9.16E-07	6.96E-05	1.05E-06
Acidification	**kg SO_2 eq**	2.65E-01	1.84E-01	7.46E+00	2.99E-02
Eutrophication	**kg N eq**	2.45E-02	8.81E-03	1.70E+01	3.53E-03

Human health damage

Impact category	Unit				
Smog	**kg O_3 eq**	4.06E+00	3.67E+00	7.63E+01	8.76E-01
Respiratory effects	**kg $PM_{2.5}$ eq**	4.32E-02	1.04E-02	5.01E-01	3.50E-03

Additional environmental information

Impact category	Unit				
Carcinogenics	**CTU_h**	2.64E-07	3.59E-08	4.68E-05	2.22E-09
Non-carcinogenics	**CTU_h**	5.98E-06	5.88E-07	9.50E-04	2.47E-07
Ecotoxicity	**CTU_e**	6.12E+01	8.60E+00	2.46E+03	1.02E+00
Fossil fuel depletion	**MJ surplus**	8.46E+01	2.29E+01	1.92E+03	1.02E+01

References

LCA Background Report
LCA background report of Ferguson single handle lavatory faucets & residential two-piece toilets, 2024; SimaPro Analyst 9.5; ecoinvent v3; 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 reviewed for conformance to ISO 14025, ISO 21930:2017, and ACLCA PCR Open Standard v1.0 by Jack Geibig, Chair (Ecoform); Hugues Imbeault-Tétreault, ing., M.Sc.A. (Groupe AGÉCO); Rebe Feraldi, LCACP, CLAR (Pacific Northwest National Laboratory).

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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 additional content

PROFLO® Calhoun 1500 Series Toilet

Toilet with 1.28gpf tank | Toilet with 1.6gpf tank | EPD additional content

Data

Background This product-average plant-specific declaration was created by collecting production data from the China facility. The toilet with 1.28gpf tank is represented by a production-weighted average of three bowl SKUs (PF1500WH, PF1501WH, and PF1503WH), five tank SKUs (PF6110WH, PF6112RWH, PF6112WH, PF6112WHM, and PF6114WH), and two toilet seat SKUs (PFTSE2000WH and PFTSWSC2000WH). The 1.6gpf tanks is represented by a production-weighted average of three bowl SKUs (PF1500WH, PF1501WH, and PF1503WH), one tank SKU (PF6112KWH), and two toilet seat SKUs (PFTSE2000WH and PFTSWSC2000WH). Together, they represent the possible combinations of a PROFLO® Calhoun 1500 series two-piece toilet.

All unit processes were modeled using primary data from Ferguson's outsourced manufacturing facilities in combination with their internal operations data. Secondary data sources include ecoinvent and USLCI databases. Literature data was used to fill any data gaps to complete the inventory.

Allocation of multi-input and multi-output processes follows a mass-based approach in the collected data, which is the most appropriate for the unit processes modeled. Allocation approaches in the background data follow the ecoinvent methodology. No co-product allocations were made in the model.

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.

Major system boundary exclusions

- Construction of major capital equipment
- Maintenance and operation of support equipment
- Human labor and employee transport
- Manufacture and transport of packaging not associated with final product
- Disposal of packaging materials not associated with the final product
- Building operational energy and water use

Flow diagram

Scenarios and additional technical information

Distribution [A4]

Toilet bowls and tanks manufactured in China are first shipped to Ferguson's distribution centers in the United States via several US ports.

Distribution method	Distance
Total road transport (average)	651 km
Sea transport to US ports (average)	14,835 km

The final transportation distance from Ferguson distribution centers to the final installation site differs for each product type.

Product type	Distance (average)
Toilet bowl	312 km
Toilet tank 1.6 gpf	853 km
Toilet tank 1.28 gpf	407 km
Toilet seat	606 km

Installation [A5]

Installation of toilets is manual, and the resulting packaging waste is assumed to be transported 100 km to final disposal. Disposal scenarios for packaging are assumed to be 80.88% recycled, 15.37% landfilled, and the remaining incinerated, in alignment with US EPA's 2018 end of life data for containers and packaging.

End-of-life [C1-C4]

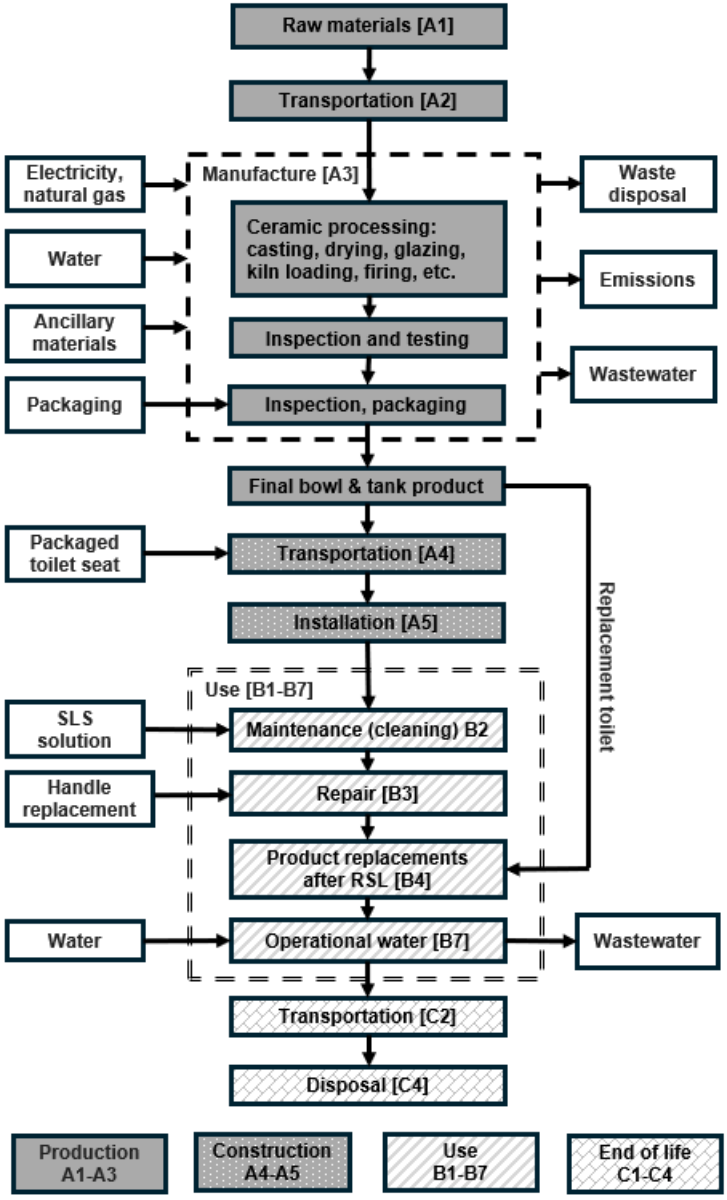
The model reflects the assumptions that toilets are 100% landfilled. The product is assumed to be transported 100 km via truck to final disposal.

Product information

Product type	Product specification	Description
Two-piece toilet 1.28gpf	IAPMO/cUPC ASME A112.19.2 / CAS B45.1 MaP Rated 1000g	1.28 GPF 15-1/2" or 17" round front or elongated toilet with 10", 12", or 14" rough-in tank (ADA options available)
Two-piece toilet 1.6gpf		1.6 GPF 15-1/2" round front or 17" elongated toilet with 12" rough-in tank

Major assumptions and limitations

- Since energy and resource inputs were not available on a per-product basis for toilet tanks and bowls, electricity and other resources consumed



were allocated to the SKUs studied by mass. Later, resources per kilogram of ceramic processed were developed. Slight deviations between SKUs are possible.

- Toilet seats may be sourced from any manufacturer, including Ferguson. Ferguson also has several seat SKUs; however, an average of the heaviest and lightest seats (by mass) was used. While the potential environmental impact from the seat is insignificant to the overall results, some seat types will have higher impacts than others.
- Water consumption plays a significant role in the total potential environmental impacts of toilets. While water use assumptions were defined by the PCR, changes to the number of uses per day are expected to significantly impact the total results.
- 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: As the relevant foreground data is primary data or modeled based on primary information from the owner of the technology, precision is considered to be high. Background data is from the ecoinvent v3.10 and US-EI 2.2 databases with documented precision to the extent available.

Completeness: The product system was checked for mass balance and completeness of the inventory. The data included is considered complete based on our understanding of the manufacturing site and a review with key stakeholders on the Ferguson team, and cut-off criteria were observed consistent with those prescribed in the PCR. Besides capital equipment, no data was knowingly omitted.

Consistency: The consistency of the model is considered high. Primary data were collected with a similar level of detail, while background data were sourced primarily from the ecoinvent database. Other databases were used if data were not available in ecoinvent or the data set was judged to be more representative.

PROFLO® Calhoun 1500 Series Two-piece Toilet 1.28 gpf - Resource use, output and waste flows, and carbon emissions & removals per functional unit

Parameters	Unit	A1-A3	A4-A5	B1	B2	B3	B4	B5	B6	B7	C1-C4	Total
Resource use indicators												
Renewable primary energy used as energy carrier (RPR_E)	MJ, NCV	4.18E+01	2.61E-01	0	7.67E+01	1.44E+00	1.16E+02	0	0	1.59E+03	1.61E-01	**1.83E+03**
Renewable primary resources with energy content used as material (RPR_M)	MJ, NCV	2.43E+01	0	0	0	0	5.82E+01	0	0	0	0	**9.11E+01**
Total use of renewable primary resources with energy content (RPR_{total})	MJ, NCV	6.61E+01	2.61E-01	0	7.67E+01	1.44E+00	1.16E+02	0	0	1.59E+03	1.61E-01	**1.92E+03**
Non-renewable primary resources used as an energy carrier ($NRPR_E$)	MJ, NCV	7.60E+02	1.36E+02	0	1.63E+01	0	4.47E+01	0	0	1.78E+04	6.87E+01	**2.15E+04**
Non-renewable primary resources with energy content used as material ($NRPR_M$)	MJ, NCV	9.41E+01	0	0	0	0	0	0	0	0	0	**3.53E+02**
Total use of non-renewable primary resources with energy content ($NRPR_{total}$)	MJ, NCV	8.54E+02	1.36E+02	0	1.63E+01	0	4.47E+01	0	0	1.78E+04	6.87E+01	**2.18E+04**
Secondary materials (SM)	kg	0	0	0	0	0	0	0	0	0	0	**0**

Renewable secondary fuels (RSF)	MJ, NCV	0	0	0	0	0	0	0	0	0	0	**0**
Non-renewable secondary fuels (NRSF)	MJ, NCV	0	0	0	0	0	0	0	0	0	0	**0**
Recovered energy (RE)	MJ, NCV	0	0	0	0	0	0	0	0	0	0	**0**
Use of net fresh water resources (FW)	m^3	8.58E+01	1.00E+00	0	5.31E+00	6.05E+00	2.39E+02	0	0	5.36E+02	3.08E-01	**8.74E+02**
Output flows and waste category indicators												
Hazardous waste disposed (HWD)	kg	2.10E-02	0	0	0	0	5.78E-02	0	0	0	0	**7.56E-02**
Non-hazardous waste disposed (NHWD)	kg	0	2.98E-01	0	0	0	1.12E+02	0	0	0	4.03E+01	**1.47E+02**
High-level radioactive waste, conditioned, to final repository (HLRW)	kg	8.58E-03	1.12E-04	0	1.62E-04	4.34E-04	2.39E-02	0	1.80E+00	2.80E-01	1.42E-05	**2.56E-01**
Intermediate- and low-level radioactive waste, conditioned, to final repository (ILLRW)	kg	1.43E-03	6.09E-05	0	1.53E-07	2.76E-04	4.17E-03	0	5.98E+00	9.39E-01	3.04E-05	**7.57E-01**
Components for re-use (CRU)	kg	0	0	0	0	0	0	0	0	0	0	**0**
Materials for recycling (MR)	kg	5.13E+00	4.73E+00	0	4.74E+00	0	1.83E+01	0	0	0	0	**2.41E+01**
Materials for energy recovery (MER)	kg	5.29E-02	0	0	0	0	1.45E-01	0	0	0	0	**1.90E-01**
Exported energy (EE)	MJ	9.72E-01	0	0	0	0	2.67E+00	0	0	0	0	**3.50E+00**
Carbon emissions and removals												
Biogenic Carbon Removal from Product (BCRP)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Biogenic Carbon Emission from Product (BCEP)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Biogenic Carbon Removal from Packaging (BCRK)	kg CO_2	3.46E+00	0	0	0	0	9.52E+00	0	0	0	0	**1.30E+01**
Biogenic Carbon Emission from Packaging (BCEK)	kg CO_2	0	2.89E+00	0	0	0	7.99E+00	0	0	0	1.18E-02	**1.09E+01**
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes (BCEW)	kg CO_2	0	1.28E-01	0	0	0	3.52E-01	0	0	0	0	**4.80E-01**
Calcination Carbon Emissions (CCE)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Carbonation Carbon Removals (CCR)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes (CWNR)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**

PROFLO® Calhoun 1500 Series Two-piece Toilet 1.6 gpf - Resource use, output and waste flows, and carbon emissions & removals per functional unit

Parameters	Unit	A1-A3	A4-A5	B1	B2	B3	B4	B5	B6	B7	C1-C4	Total
Resource use indicators												
Renewable primary energy used as energy carrier (RPR_E)	MJ, NCV	4.26E+01	3.99E-02	0	7.67E+01	1.58E+00	1.18E+02	0	0	1.99E+03	1.68E-01	**2.23E+03**
Renewable primary resources with energy content used as material (RPR_M)	MJ, NCV	2.43E+01	0	0	0	0	6.69E+01	0	0	0	0	**9.13E+01**
Total use of renewable primary resources with energy content (RPR_{total})	MJ, NCV	6.69E+01	3.99E-02	0	7.67E+01	1.58E+00	1.85E+02	0	0	1.99E+03	1.68E-01	**2.32E+03**

Non-renewable primary resources used as an energy carrier ($NRPR_E$)	MJ, NCV	7.82E+02	1.61E+02	0	1.63E+01	4.82E+01	2.79E+03	0	0	2.22E+04	7.14E+01	**2.61E+04**
Non-renewable primary resources with energy content used as material ($NRPR_M$)	MJ, NCV	9.44E+01	0	0	0	0	2.60E+02	0	0	0	0	**3.54E+02**
Total use of non-renewable primary resources with energy content ($NRPR_{total}$)	MJ, NCV	8.76E+02	1.61E+02	0	1.63E+01	4.82E+01	3.05E+03	0	0	2.22E+04	7.14E+01	**2.64E+04**
Secondary materials (SM)	kg	0	0	0	0	0	0	0	0	0	0	**0**
Renewable secondary fuels (RSF)	MJ, NCV	0	0	0	0	0	0	0	0	0	0	**0**
Non-renewable secondary fuels (NRSF)	MJ, NCV	0	0	0	0	0	0	0	0	0	0	**0**
Recovered energy (RE)	MJ, NCV	0	0	0	0	0	0	0	0	0	0	**0**
Use of net fresh water resources (FW)	m^3	8.70E+01	1.03E+00	0	5.31E+00	0	2.43E+02	0	0	6.70E+02	3.08E-01	**1.01E+03**
Output flows and waste category indicators												
Hazardous waste disposed (HWD)	kg	2.10E-02	0	0	0	0	5.78E-02	0	0	0	0	**7.88E-02**
Non-hazardous waste disposed (NHWD)	kg	0	2.98E-01	0	0	0	1.12E+02	0	0	0	4.03E+01	**1.52E+02**
High-level radioactive waste, conditioned, to final repository (HLRW)	kg	8.58E-03	1.12E-04	0	1.62E-04	4.34E-04	2.39E-02	0	0	2.80E-01	1.42E-05	**3.13E-01**
Intermediate- and low-level radioactive waste, conditioned, to final repository (ILLRW)	kg	1.43E-03	6.09E-05	0	1.53E-07	2.76E-04	4.17E-03	0	0	9.39E-01	3.04E-05	**9.45E-01**
Components for re-use (CRU)	kg	0	0	0	0	0	0	0	0	0	0	**0**
Materials for recycling (MR)	kg	5.13E+00	1.51E+00	0	0	0	1.83E+01	0	0	0	0	**2.49E+01**
Materials for energy recovery (MER)	kg	5.29E-02	0	0	0	0	1.45E-01	0	0	0	0	**1.98E-01**
Exported energy (EE)	MJ	9.72E-01	0	0	0	0	2.67E+00	0	0	0	0	**3.64E+00**
Carbon emissions and removals												
Biogenic Carbon Removal from Product (BCRP)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Biogenic Carbon Emission from Product (BCEP)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Biogenic Carbon Removal from Packaging (BCRK)	kg CO_2	3.47E+00	0	0	0	0	9.53E+00	0	0	0	0	**1.30E+01**
Biogenic Carbon Emission from Packaging (BCEK)	kg CO_2	0	2.90E+00	0	0	0	8.00E+00	0	0	0	1.19E-02	**1.09E+01**
Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes (CBCEW)	kg CO_2	0	1.28E-01	0	0	0	3.53E-01	0	0	0	0	**4.80E-01**
Calcination Carbon Emissions (CCE)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Carbonation Carbon Removals (CCR)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**
Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes (CWNR)	kg CO_2	0	0	0	0	0	0	0	0	0	0	**0**

PROFLO® Calhoun 1500 Series Two-piece Toilet 1.28 gpf - LCIA results per functional unit

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	Total

Ozone depletion	kg CFC-11 eq	1.03E-06	5.52E-07	4.79E-08	0	3.70E-08	3.31E-08	7.27E-06	0	0	4.89E-05	0	9.80E-07	0	2.96E-08	**5.89E-0**
Global warming	kg CO2 eq	6.32E+01	1.04E+01	6.81E-01	0	2.18E+00	2.35E+00	2.19E+02	0	0	1.03E+03	0	4.88E+00	0	5.91E-01	**1.33E+0**
Smog	kg O3 eq	3.93E+00	3.38E+00	4.01E-02	0	1.44E-01	1.10E-01	2.25E+01	0	0	4.19E+01	0	7.93E-01	0	5.04E-02	**7.29E+0**
Acidifi-cation	kg SO2 eq	2.57E-01	1.72E-01	1.42E-03	0	2.27E-02	7.93E-03	1.26E+00	0	0	4.89E+00	0	2.69E-02	0	1.78E-03	**6.64E+0**
Eutrophi-cation	kg N eq	2.40E-02	7.13E-03	8.02E-04	0	3.08E-02	7.29E-04	9.72E-02	0	0	1.36E+01	0	2.76E-03	0	6.36E-04	**1.37E+0**
Carcino-genics	CTUh	2.59E-07	3.35E-08	5.11E-10	0	6.23E-08	1.15E-08	8.12E-07	0	0	3.67E-05	0	1.40E-09	0	7.49E-10	**3.79E-0**
Non-carcino-genics	CTUh	5.84E-06	5.00E-07	1.47E-08	0	3.07E-06	7.45E-08	1.81E-05	0	0	7.43E-04	0	2.33E-07	0	5.24E-09	**7.70E-0**
Respiratory effects	kg PM2.5 eq	4.19E-02	9.53E-03	1.60E-04	0	3.46E-03	1.17E-03	1.51E-01	0	0	2.71E-01	0	3.14E-03	0	2.22E-04	**4.82E-0**
Additional environmental information																
Ecotoxicity	CTUe	5.94E+01	7.67E+00	4.87E-02	0	8.22E+01	1.18E+00	1.87E+02	0	0	1.75E+03	0	6.28E-01	0	3.69E-01	**2.09E+0**
Fossil fuel depletion	MJ surplus	8.27E+01	1.89E+01	4.65E-01	0	1.22E+00	5.33E+00	3.08E+02	0	0	1.27E+03	0	9.41E+00	0	3.73E-01	**1.70E+0**

PROFLO® Calhoun 1500 Series Two-piece Toilet 1.6 gpf - LCIA results per functional unit

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	Total
Ozone depletion	kg CFC-11 eq	1.06E-06	8.68E-07	4.80E-08	0	3.70E-08	3.65E-08	8.31E-06	0	0	6.12E-05	0	1.02E-06	0	3.07E-08	**7.26E-05**
Global warming	kg CO2 eq	6.51E+01	1.23E+01	6.82E-01	0	2.18E+00	2.52E+00	2.30E+02	0	0	1.29E+03	0	5.07E+00	0	6.03E-01	**1.61E+03**
Smog	kg O3 eq	4.06E+00	3.63E+00	4.01E-02	0	1.44E-01	1.18E-01	2.37E+01	0	0	5.23E+01	0	8.24E-01	0	5.23E-02	**8.48E+0**
Acidifi-cation	kg SO2 eq	2.65E-01	1.83E-01	1.42E-03	0	2.27E-02	8.56E-03	1.32E+00	0	0	6.11E+00	0	2.80E-02	0	1.85E-03	**7.94E+0**
Eutrophi-cation	kg N eq	2.45E-02	8.01E-03	8.03E-04	0	3.08E-02	7.87E-04	1.01E-01	0	0	1.69E+01	0	2.87E-03	0	6.55E-04	**1.71E+01**
Carcino-genics	CTUh	2.64E-07	3.54E-08	5.11E-10	0	6.23E-08	1.23E-08	8.30E-07	0	0	4.59E-05	0	1.45E-09	0	7.72E-10	**4.71E-05**
Non-carcino-genics	CTUh	5.98E-06	5.73E-07	1.48E-08	0	3.07E-06	8.15E-08	1.87E-05	0	0	9.28E-04	0	2.42E-07	0	5.38E-09	**9.57E-04**
Respiratory effects	kg PM2.5 eq	4.32E-02	1.02E-02	1.60E-04	0	3.46E-03	1.27E-03	1.57E-01	0	0	3.39E-01	0	3.27E-03	0	2.30E-04	**5.58E-0**
Additional environmental information																
Ecotoxicity	CTUe	6.12E+01	8.55E+00	4.87E-02	0	8.22E+01	1.27E+00	1.95E+02	0	0	2.18E+03	0	6.52E-01	0	3.71E-01	**2.53E+0**
Fossil fuel depletion	MJ surplus	8.46E+01	2.24E+01	4.66E-01	0	1.22E+00	5.74E+00	3.24E+02	0	0	1.59E+03	0	9.78E+00	0	3.88E-01	**2.04E+0**

How we make it greener

PROFLO® Calhoun 1500 Series Toilet

Expand all

PRODUCTION

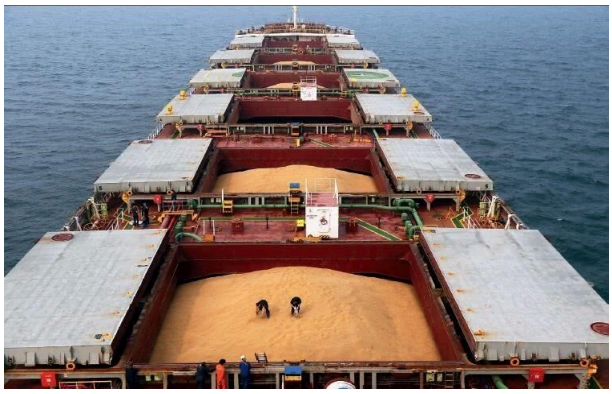
During the production of toilets, unqualified semi-finished and finished products can be almost 100% recycled, and unqualified wet billet can be directly returned to the batching workshop to prepare new mud. Ceramics are directly crushed and reused for mud preparation where possible.

Current Ferguson production processes mainly use natural gas. However, the use of solar power is under consideration to promote sustainable development. The local government in the area where the toilet production facility is located has begun the construction of solar power generation systems, which will be used in the production of sanitary ceramics in order to reduce the use of natural gas and other energy inputs.

TRANSPORTATION

Ferguson is making efforts to reduce the total transportation distance required for its upstream transportation and distribution activities. These efforts include local sourcing and the use of multiple distribution centers.

For example, the main raw materials used in sanitary ceramic production are washed mud, feldspar, and porcelain stone powder. These raw materials are sourced from locations close to the manufacturing facility, and the port for shipment to the US is close by.



END OF LIFE

Ferguson is working to make end-of-life disposal pathways more sustainable for all its product offerings across multiple product categories. For example, waste sanitary ceramics can be broken into ceramic fragments or powder, which can be used to manufacture building materials such as ceramic tile adhesives and cement additives.

Processing waste sanitary ceramics into fine particles can produce raw materials for the production of green building materials, such as concrete additives used for environmentally friendly lightweight partition panels, road bricks, etc. While this is not yet commonplace, these practices would reduce the emissions associated with landfill and improve the potential environmental performance of building materials.

EPD	LCA
3rd-party reviewed	✓

Transparency Report (EPD)

3rd-party verified	✓

Validity: 08/13/2024 – 08/12/2029
FER – 20240813 – 002

MATERIAL HEALTH	Material evaluation
Self-declared	✓

This environmental product declaration (EPD) was externally verified by Industrial Ecology Consultants, according to ISO 21930:2017; SM Part A; SM Part B: Residential toilets; and ISO 14025:2006.

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Industrial Ecology Consultants

SUMMARY

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

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

Functional unit
One residential toilet in an average residential environment used over the estimated service of the building

LCIA methodology; LCA software; LCI database
TRACI 2.1; SimaPro Analyst 9.5; ecoinvent v3.10 and US-EI 2.2 databases

Public LCA
LCA background report of Ferguson single handle lavatory faucets & residential two-piece toilets

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