Environmental Product Declaration

Stainless steel Drop-In Sinks

Drop-in sinks under this study come in multiple SKUs and have a finished edge or rim. They are installed or mounted on top of the countertop and can be removed and installed without damaging countertops.

ELKAY®

Zurn Elkay Water Solutions supplies the industry's widest range of clean water solutions for drinking water, hygiene and sustainable water management. Headquartered in Milwaukee, Wisconsin, Zurn Elkay Water Solutions works with customers around the globe to deliver products and systems that enhance and ensure water quality, safety, hygiene, flow control and conservation.

By embedding ESG considerations into annual strategic planning process, Zurn Elkay Water Solutions ties their sustainability goals directly to their company's success. Zurn Elkay Water Solutions organizes their ESG strategy within five key pillars: Environmental, Health and Safety, People, Communities, Governance and Ethics.

Zurn Elkay Water Solutions seeks to enhance human health and the environment through a premier ecosystem of water safety and control products and a pursuit of sustainable business practices in operations.

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION ULE.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

ELKAY®

Stainless Steel Drop-In Sinks

According to ISO 14025, and ISO21930:2017

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions 333 Pfingsten Rd, Northbrook, IL 60062 WWW.UL.COM WWW.SPOT.UL.COM
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	Program Operator Rules v 2.7 2022
MANUFACTURER NAME AND ADDRESS	Zurn Elkay Water Solutions 511 W Freshwater Way, Milwaukee, Wisconsin 53211 USA
DECLARATION NUMBER	4790701923.101.1
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	One (1) packaged product for 75 years Stainless Steel Drop-In Sinks
REFERENCE PCR AND VERSION NUMBER	Part A: Life Cycle Assessment Calculation Rules and Report Requirements (UL Environment, V3.2, 2018) Part B: Plumbing Vessel EPD Requirements (UL Environment V2.0, 2018)
DESCRIPTION OF PRODUCT APPLICATION/USE	A drop-in sink (also known as top mount or self rimming) has a finished edge or rim and is installed or mounted on top of the countertop. Ideal for replacement, drop-in sinks can be removed and installed without damaging countertops.
PRODUCT RSL DESCRIPTION (IF APPL.)	20 years
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE	December 1, 2023
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product-specific
RANGE OF DATASET VARIABILITY	N/A
EPD SCOPE	Cradle to grave
YEAR(S) OF REPORTED PRIMARY DATA	2021
LCA SOFTWARE & VERSION NUMBER	Sphera LCA for Experts (LCA FE) 10.6.2.9 (formerly GaBi)
LCI DATABASE(S) & VERSION NUMBER	Sphera Managed Life Cycle Content (MLC) Database 2022.2 (formerly GaBi Database)
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1, IPCC AR5

The PCR review was conducted by:	UL Solutions PCR Review Panel epd@ul.com
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Cooper McCollum Cooper McCollum, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Jack Geibig Jack Geibig, Ecoform

LIMITATIONS

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Comparison of the environmental performance of [Product category] using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR . Full conformance with the PCR for plumbing vessels allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category PCR, and use equivalent scenarios with respect to construction works. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

ENVIRONMENTAL PRODUCT DECLARATION

ELKAY®

Stainless Steel Drop-In Sinks

According to ISO 14025
and ISO 21930:2017

1. Product Definition and Information

1.1. Description of Company/Organization

Zurn Elkay Water Solutions supplies the industry's widest range of clean water solutions for drinking water, hygiene and sustainable water management. Headquartered in Milwaukee, Wisconsin, Zurn Elkay Water Solutions works with customers around the globe to deliver products and systems that enhance and ensure water quality, safety, hygiene, flow control and conservation.

1.2. Product Description

Product Identification

A drop-in sink (also known as top mount or self rimming) has a finished edge or rim and is installed or mounted on top of the countertop. Ideal for replacement, drop-in sinks can be removed and installed without damaging countertops. This EPD presents results for 1 representative product: LWDB332284. This product was chosen based on its mass as representative with the maximum impacts of all stainless steel drop-in sink SKUs listed in Section 8.

Model LWDB332284 is a 20-gauge stainless steel, 4-hole double bowl drop-in kitchen sink.

These products fall under CSI division 22 41 16.

1.3. Application

The products in this study are intended for use in kitchens, bars, and laundry rooms of residential settings. They are to be used a basin for washing hand, dishes, or other sink needs.

1.4. Declaration of Methodological Framework

This LCA follows an attributional approach.

1.5. Technical Requirements

Technical data that describes the assessed products are pressented in Table 1. These products are defined by ASME A112.19.3/CSA B45.4.

Table 1. Technical Data for Drop-In Sinks

NAME	STANDARD	LWDB332284
Length [in (mm)]	n/a	33 (838)
Width [in (mm)]	n/a	22 (559)
Height [in (mm)]	n/a	8 (203)
Weight [lb (kg)]	n/a	15 (6.80)
Gauge	n/a	20
Sound Insulation Class (dB)	ENG-WO-0039	<90
Maximum Heat Resistance Temperature [˚F (˚C)]	n/a	535 (279)

Other technical performance tests listed in the PCR Part B are not conducted by the manufacturer. Other technical data can be found on the product website: https://www.elkay.com/products/details/lwfdb332284

1.6. Properties of Declared Product as Delivered

Elkay drop-in sinks are sold with sound deadening pads and without any accessories. Drop-in sinks are packaged in a cardboard box with cardboard inserts, installation instructions, and a product label. Elkay sinks come in a variety of dimensions with several bowl options to meet customer needs. Please see Table 1 for technical properties of product as delivered, Table 3 for packaging details, and Table 5 for functional unit details.

1.7. Material Composition

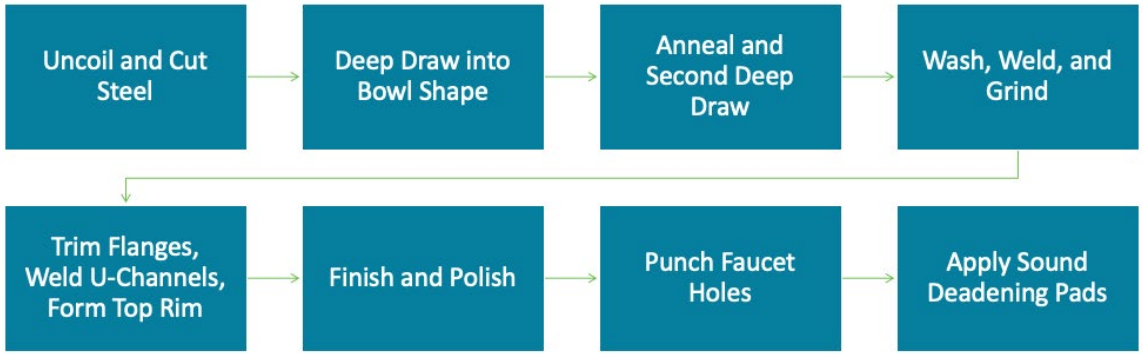
The product composition of the products are presented in Table 2.

Table 2. Material Composition for Drop-In Sinks

NAME	LWDB332284
301 Stainless Steel	86%
Galvanized Steel	11%
Bitumen Pad	3%

1.8. Manufacturing

The stainless steel sinks in this study are manufactured in Lumberton, NC. The manufacturing process starts from uncoiling the stainless steel coil and cutting it into blanks. After lubricant is applied, the blank is shaped into a bowl through a first deep drawing process. After the first draw, a bowl may go through annealing before a second drawing process. Drawn bowls are washed, welded, and ground to remove weld lines. The flanges are trimmed, then galvanized steel u-channels are welded onto the underside, and the top rim is formed. The bottom and sides of the bowl are finished with lubrication and polished with abrasive media. Faucet holes are punched before the sink manufacturing process is finished with washing, inspection, and application of sound deadening pads. The manufacturing process is depicted in the diagram below.



1.9. Packaging

Packaging used in the shipment of the products are described in Table 3.

Table 3. Packaging Composition for Drop-In Sinks, per unit

NAME	LWDB332284
Cardboard [kg]	1.80
Paper [kg]	0.182
PET Label [kg]	6.21E-04

1.10. Transportation

The product is delivered from the point of purchase to the building site via truck over an assumed distance of 500 km based on the PCR Part B.

The transportation distance for all waste flows is assumed to be 100 km.

1.11. Product Installation

The installation process includes cutting an opening on the countertop and caulking. The caulk required for installation is included, detailed in Table 4. The amount of caulk needed are based on a 10 oz cartridge of standard silicone, whose contents can cover 52 linear feet using a 3/16-inch bead. Thus, 17.9 g of silicone caulk compound was assumed to cover each meter of the perimeter of the sink. The manufacturing of the installation equipment is not included in the study as these are multi-use tools and the impacts per functional unit are considered negligible. Additionally, the energy required to cut an opening into a countertop was excluded the impacts are considered negligible. It is assumed no product is wasted in the installation process. Packaging and installation waste disposal have been modeled as per guidelines in section 2.8.5 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements from UL Environment.

Table 4. Disposal Pathways by Packaging Material

COMPONENT	RECYCLING	LANDFILL	INCINERATION
Cardboard	75%	20%	5%
Paper	15%	68%	17%
PET Label	15%	68%	17%

1.12. Use

Products in this study are used as basins in kitchens, laundry, and bar areas for cleaning dishes, clothes, or other items that require water. Cleaning assumptions were modeled per the PCR for residential kitchen sinks: 10 mL of a 1% sodium lauryl sulfate solution was used once per week, 52 weeks per year for each year of the building service life (75 years). It is assumed this cleaning solution goes to the sewer for municipal water treatment following each cleaning. These details are summarized in Table 10.

1.13. Reference Service Life and Estimated Building Service Life

In this study, the reference service life (RSL) of the products is 20 years. The PCR Part B defines lifetime by material; however, no lifetime is prescribed for stainless steel plumbing vessels. Elkay conducted industry research on the lifetime of stainless steel. In *The Global Life Cycle of Stainless Steels* (International Stainless Steel Forum, 2020), the average stainless steel lifespan is estimated to be around 20 years, but some stainless steels are in use for a century and beyond. In *A Guide to Stainless Steel Kitchen Sinks for Homeowners* (Huynh, 2021), the article highlights the benefits of choosing stainless steel for a kitchen sink as being strong and durable. The article states that with proper maintenance, stainless steel kitchen sinks are expected to last for more than 30 years. Per industry research, the stainless steel sink lifetime used in this LCA is conservatively assumed to be 20 years.
After initial installation in a building with an estimated service life (ESL) of 75 years there will be 2.8 replacements needed.

1.14. Reuse, Recycling, and Energy Recovery

Elkay stainless steel sinks may be recycled or reused at the end of life. The LCA from which this EPD is created takes the conservative approach by assuring that all products are disposed of in the system boundary.

1.15. Disposal

Based on the PCR Part B Section 2.16, the products are assumed to be 100% landfilled.

2. Life Cycle Assessment Background Information

2.1. Functional or Declared Unit

The functional unit is one (1) packaged product piece with a provided conversion factor to 1 kg, detailed in Table 5. Flow rate and flush rate are not applicable for this product.

Table 5. Functional Unit Details

Product	Product Weight [kg]	Packaging Weight [kg]	1 Installment (Product + Packaging) [kg]	Functional Unit (2.8 Replacements) [kg]	Conversion to 1 kg
LWDB332284	7.21	1.98	9.19	25.7	0.0389

2.2. System Boundary

This EPD is considered a Cradle-to-Grave study. A summary of the life cycle modules included in this EPD is presented in Table 6.

Table 6: Description of the system boundary modules

Module Name	Description	Analysis Period	Summary of Included Elements
A1	Product Stage: Raw Material Supply	2021	Raw material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	2021	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and measured and calculated distance.
A3	Product Stage: Manufacturing	2021	Energy, water, and material inputs required for manufacturing products from raw materials. Packaging materials and manufacturing waste are included as well.
A4	Construction Process Stage: Transport	2021	Shipping from manufacturing site to project site. Fuel use requirements estimated based on measured and calculated distance.
A5	Construction Process Stage: Installation	2021	Energy and material input for installation. Installation waste and packaging material waste are included as well.
B1	Use Stage: Use	2021	No inputs are required for the use of the product.
B2	Use Stage: Maintenance	2021	Maintenance includes cleaning solution and water consumption as recommended by the PCR Part B.
B3	Use Stage: Repair	2021	No inputs required for repairs.
B4	Use Stage: Replacement	2021	Materials required for replacement.
B5	Use Stage: Refurbishment	2021	No inputs required for refurbishment.
B6	Operational Energy Use	2021	No operational energy use of building integrated system during product use.
B7	Operational Water Use	2021	No operational water use of building integrated system during product use.
C1	EOL: Deconstruction	2021	No inputs required for deconstruction.
C2	EOL: Transport	2021	Shipping from project site to landfill. Fuel use requirements estimated based on product weight and assumed distance recommended by the PCR (Part B).
C3	EOL: Waste Processing	2021	Waste processing included for landfill.
C4	EOL: Disposal	2021	Assumes all products are sent to landfill, per PCR Part B.
D	Benefits beyond system	MND	Module Not Declared

2.3. Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The majority of the estimations are within the primary data. Some assumptions made in the study that may have affected the results are:

- The inclusion of overhead energy data was determined appropriate due to the inability to sub-meter and isolate manufacturing energy from overhead energy.
- The use and selection of secondary datasets from Sphera's Managed Life Cycle Content Database (MLC, formerly GaBi Database) – The selection of which generic dataset to use to represent an aspect of a supply chain is a significant value choice. Collaboration between the LCA practitioner, the manufacturer, and MLC data experts was invaluable in determining best-case scenarios in the selection of data. However, no generic data can be a perfect fit. Improved supply chain specific data would improve the accuracy of results, however budgetary and time constraints also must be taken into account.
- The use amount of bitumen pad is estimated based on the size of the product bottom.

Some limitations to the study have been identified as follows:

- The primary end-of-life pathway data are absent and thus the EOL can only be modeled conservatively as per PCR Part B.
- Availability of geographically more accurate datasets would have improved the accuracy of the study.
- Only known and quantifiable environmental impacts are considered.
- Due to the assumptions and value choices listed above, these do not reflect real-life scenarios and hence they cannot assess actual and exact impacts, but only potential environmental impacts.

2.4. Cut-off Criteria

Material and energy inputs greater than 1% (based on total mass and energy inputs of the system) were included within the scope of analysis. Material and energy inputs less than 1% were included if sufficient data were available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material inputs, energy inputs, and environmental impacts are less than 5% based on total flows in the system. No known flows were deliberately excluded from the EPD.

The list of excluded materials and energy inputs include:

- As the tools used during the installation of the product are multi-use tools and can be reused after each installation, the per-declared unit impacts are considered negligible and therefore are not included.
- The electricity needed during installation to cut an opening in the countertop was considered negligible.
- Inputs to polishing pads were less than 0.1% of the total product weight and were considered negligible.
- Some material inputs may have been excluded within the MLC datasets used for this project. All MLC datasets have been critically reviewed and conform to the exclusion requirement of the PCR, Part A: “Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report”.

2.5. Data Sources

Primary data were collected by Elkay associates for onsite energy, water and waste during the course of manufacturing. Whenever available, supplier data were used for raw materials used in the production process. When primary data did not exist, secondary data for raw material production were used from Sphera’s LCA For Experts (LCA FE) Software Version 10.6.2.9 and MLC Database Service Pack 2022.2. All calculation procedures adhere to ISO14044. Third party verified ISO 14040/44 secondary LCI data sets contribute more than 67% of total impact to any of the required impact categories identified by the PCR.

2.6. Data Quality

Geographical Coverage

The geographical scope of the manufacturing portion of the life cycle is the United States. All primary data were collected from the manufacturer. The geographical scope of the raw material acquisition is the United States and China. Customer distribution, site installation, and use portions of the life cycle is within the United States. The geographic coverage of primary data is considered excellent.

Time Coverage

Primary data were provided by the manufacturer and represent all information for calendar year 2021. Using this data meets the PCR requirements. Time coverage of this primary data is considered excellent.

Data necessary to model cradle-to-gate unit processes were sourced from Sphera's MLC datasets. Time coverage of the MLC datasets varies from approximately 2012 to present. All datasets rely on at least one 1-year average data. Overall time coverage of the datasets is considered good and meets the requirement of the PCR that all data be updated within a 10-year period.

Technological Coverage

Primary data provided by the manufacturer are specific to the technology the company uses in manufacturing their product. They are site-specific and considered of good quality. It is worth noting that the energy and water used in manufacturing the product includes overhead energy such as lighting, heating, and sanitary use of water. Sub-metering was not available to extract process-only energy and water use from the total input use. Sub-metering would improve the technological coverage of data quality.

Completeness

The data included is considered complete. The LCA model included all known material and energy flows, with the exception of what is listed in section 2.4. 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.

2.7. Period under Review

The period under review is calendar year 2021.

2.8. Allocation

General principles of allocation were based on ISO 14040/44. The manufacturing facility produces drop-in and undermount sinks. Allocation of manufacturing inputs and outputs for co-products was done on a mass basis. To derive a per-unit value for manufacturing inputs such as electricity, thermal energy and water, allocation based on total production by mass was adopted. As a default, secondary MLC datasets use a physical basis for allocation.

Of relevance to the defined system boundary is the method in which recycled materials were handled. Throughout the study recycled materials were accounted for via the cut-off method. Under this method, impacts and benefits associated with the previous life of a raw material from recycled stock are excluded from the system boundary. Additionally, impacts and benefits associated with secondary functions of materials at end of life are also excluded (i.e., production into a third life or energy generation from the incineration plant). The study does include the impacts associated with reprocessing and preparation of recycled materials that are part of the bill of materials of the products under study.

3. Life Cycle Assessment Scenarios

Table 7. Transport to the building site (A4)

NAME	LWDB332284	UNIT
Fuel type	Diesel	
Liters of fuel	42	l/100km
Vehicle type	US: Truck - Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b	
Transport distance	500	km
Capacity utilization (including empty runs, mass based	67	%
Weight of products transported (if gross density not reported)	9.19	kg
Volume of products transported	0.0952	m^3
Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products)	1	

Table 8. Installation into the building (A5)

NAME	LWDB332284	UNIT
Silicone Caulk	1.39E-02	kg
Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer)	-	m^3
Electricity consumption	-	kWh
Product loss per functional unit	-	kg
Waste materials at the construction site before waste processing, generated by product installation	1.98E+00	kg
Pulp Landfilling	3.96E-01	kg
Pulp Incineration	9.89E-02	kg
Pulp Recycling	1.48E+00	kg
Plastic Landfilling	4.23E-04	kg
Plastic Incineration	1.06E-04	kg
Plastic Recycling	9.32E-05	kg
Biogenic carbon contained in packaging	3.12E+00	kg CO2
Direct emissions to ambient air, soil and water	-	kg
VOC content	-	$\mu g/m^3$

Table 9. Reference Service Life

NAME	VALUE	UNIT
RSL	20	years

Table 10. Maintenance (B2)

NAME	VALUE	UNIT
Maintenance process information (cite source in report)	PCR Part B Section 3.3.1	-
Maintenance cycle	1,026	Number/ RSL
Maintenance cycle	3,900	Number/ ESL
Water Consumption Source: Tap water Fate: Sewer	7.72E-03	m^3
Sodium Lauryl Sulfate	7.89E-03	kg
Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants);	Cleaned once weekly for 52 weeks per year	

Table 11. Replacement (B4)

NAME	VALUE	UNIT
Replacement cycle	1	Number/ RSL
Replacement cycle	2.8	Number/ ESL
Energy input, specified by activity, type and amount	0	kWh
Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer)	0	m^3
Ancillary materials specified by type (e.g. cleaning agent)	0	kg
Replacement of worn parts, specify parts/materials	0	kg
Direct emissions to ambient air, soil and water	0	kg
Further assumptions for scenario development, e.g. frequency and time period of use	-	

Table 12. End of life (C1-C4)

NAME		LWDB332284	UNIT
Assumptions for scenario development (description of deconstruction, collection, recovery, disposal method and transportation)		Manual Deconstruction; 100% landfilled	
Collection process (specified by type)	Collected separately	-	kg
	Collected with mixed construction waste	7.21	kg
Recovery (specified by type)	Reuse	-	kg
	Recycling	-	kg
	Landfill	7.21	kg
	Incineration	-	kg
	Incineration with energy recovery	-	kg
	Energy conversion efficiency rate	-	
Disposal (specified by type)	Product or material for final deposition	7.21	kg
Removals of biogenic carbon (excluding packaging)			kg CO_2

4. Life Cycle Assessment Results

Table 13. Description of the system boundary modules

	PRODUCT STAGE			CONSTRUCT-ION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
Product Specific	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

MND: Module not declared

LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks

Table 14: LCIA results for one installed LWDB332284 for 75 years

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP_{100}, IPCC AR5															
GWP [kg CO_2 eq]	4.28E+01	3.73E-01	9.23E-01	0.00E+00	2.74E+00	0.00E+00	1.26E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.39E-02	0.00E+00	3.12E-01	MND
TRACI LCIA Impacts (North America)															
AP [kg SO_2 eq]	2.15E-01	1.71E-03	2.09E-03	0.00E+00	3.78E-03	0.00E+00	6.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-04	0.00E+00	1.61E-03	MND
EP [kg N eq]	1.31E-02	1.52E-04	2.92E-04	0.00E+00	1.20E-03	0.00E+00	3.83E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.15E-05	0.00E+00	2.82E-04	MND
ODP [kg CFC 11 eq]	4.00E-12	6.94E-16	4.45E-14	0.00E+00	4.16E-14	0.00E+00	1.14E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E-16	0.00E+00	9.77E-15	MND
Resources [MJ]	5.77E+01	6.84E-01	5.65E-01	0.00E+00	8.81E+00	0.00E+00	1.69E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.36E-01	0.00E+00	5.88E-01	MND
SFP [kg O_3 eq]	2.62E+00	3.94E-02	2.17E-02	0.00E+00	8.38E-02	0.00E+00	7.62E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.63E-03	0.00E+00	2.33E-02	MND
Carbon Emissions and Uptake															
BCRP [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
BCEP [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
BCRK [kg CO_2]	3.12E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
BCEK [kg CO_2]	0.00E+00	0.00E+00	3.12E+00	0.00E+00	0.00E+00	0.00E+00	8.73E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
BCEW [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
CCE [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
CCR [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
CWNR [kg CO_2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND

Table 15: LCI results for one installed LWDB332284 for 75 years

IMPACT CATEGORY	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Resource Use Indicators															
RPR_E [MJ]	1.58E+02	2.01E-01	2.97E+00	0.00E+00	1.83E+00	0.00E+00	4.56E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.01E-02	0.00E+00	4.35E-01	MND
RPR_M [MJ]	3.31E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.26E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
$NRPR_E$ [MJ]	6.79E+02	5.17E+00	6.13E+00	0.00E+00	6.58E+01	0.00E+00	1.97E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.03E+00	0.00E+00	4.64E+00	MND
$NRPR_M$ [MJ]	1.34E+01	0.00E+00	9.98E+00	0.00E+00	0.00E+00	0.00E+00	6.54E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
SM [kg]	6.72E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.88E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
FW [m^3]	7.09E-01	7.23E-04	4.24E-03	0.00E+00	1.43E-02	0.00E+00	2.04E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.44E-04	0.00E+00	6.67E-04	MND
Output Flows and Waste Categories															
HWD [kg]	1.42E-03	2.15E-11	7.97E-10	0.00E+00	3.50E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.28E-12	0.00E+00	1.74E-10	MND
NHWD [kg]	2.02E+00	4.44E-04	3.92E-01	0.00E+00	1.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.85E-05	0.00E+00	7.26E+00	MND
HLRW [kg]	4.33E-05	1.70E-08	1.96E-07	0.00E+00	9.26E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.38E-09	0.00E+00	4.64E-08	MND
ILLRW [kg]	3.48E-02	1.43E-05	2.18E-04	0.00E+00	7.75E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.85E-06	0.00E+00	4.07E-05	MND
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MR [kg]	2.17E+00	0.00E+00	1.48E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MER [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EEE [MJ]	0.00E+00	0.00E+00	3.18E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EET [MJ]	0.00E+00	0.00E+00	1.02E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND

5. LCA Interpretation

For global warming, the replacement stage (B4) representing the replacement of the products every 20 years is the major contributor, contributing 72% of the total global warming potential. Over a 75-year estimated service life of a building, a stainless steel sink is assumed to last 20 years and needs a replacement after its reference service life ends. This stage accounted for the impacts derived from the raw materials (A1, A2), manufacturing (A3), distribution (A4), and installation (A5) of all the new replacements, and the disposal (C1-C4) of the replaced products. The second contributor is the product stage (A1-A3). Within the product stage, the majority of the global warming impacts comes from the upstream impact of stainless steel material production.
The trend of major contributors for other impact categories closely follows that for global warming impacts.

6. Additional Environmental Information

6.1 Environment and Health During Manufacturing

Information on Zurn Elkay's sustainability programs, sustainability resources, and sustainability certifications can be found at Zurn Elkay's sustainability website at https://zurnelkay.com/sustainability.

No substances required to be reported as hazardous per the EPA's Resource Conservation and Recovery Act (US EPA, 2023) were identified during the LCA associated with the production of this product.

6.2 Environment and Health During Manufacturing

Installation of stainless steel sinks should follow manufacturer instructions.

There are no adverse environment or health impacts during installation of this product.

7. References

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8. Additional SKUs Covered

LCA results and data are calculated and presented for one representative drop-in sink. Additional SKUs are represented by the LCA results presented in section 4. These sinks are made of the same materials, are manufactured in the same facility, and are assumed to be installed, used, and disposed of in the same manner as the products in this LCA. They differ from the representative sink only by the mass of material, packaging, and manufacturing inputs needed. Impacts for the additional SKUs were analyzed and are less than or equal to the full life cycle results for the representative drop-in sink.

Additional SKUs Covered					
BPSR23170	DRKAD222055FR4	DRKADQ222045L0	HDDB332283	LRAD221955L0	LRADQ2522600
BPSRQ23170	DRKAD222055L0	DRKADQ222045R0	HDDB332284	LRAD221955R0	LRADQ2522650
CR31220	DRKAD222055R0	DRKADQ2220500	HDSB252281	LRAD2219600	LRADQ2918650
D225190	DRKAD2220600	DRKADQ222050L0	HDSB252283	LRAD221960L0	LRADQ2922550
DLFR191810	DRKAD2220602FRM	DRKADQ222050R0	HDSB252284	LRAD2219650	LRADQ2922600
DLFR251910	DRKAD222060FR4	DRKADQ2220550	LFR1918	LRAD221965L0	LRADQ3122500
DLR1722100	DRKAD222060L0	DRKADQ222055L0	LFR2519	LRAD221965R0	LRADQ3122550
DLR172210MR2	DRKAD222060R0	DRKADQ222055R0	LFRAD191860	LRAD2521450	LRADQ3122600
DLR1919100	DRKAD2220650	DRKADQ2220600	LFRAD251955	LRAD2521500	LRADQ3122650
DLR2219100	DRKAD2220652FRM	DRKADQ222060L0	LFRAD251960	LRAD2521550	LRADQ3319500
DLR2519100	DRKAD222065FR4	DRKADQ222060R0	LFRAD251965	LRAD252155L0	LRADQ3319550
DLR2521100	DRKAD222065L0	DRKADQ2220650	LR15220	LRAD252155R0	LRADQ3319600
DLR2522100	DRKAD222065R0	DRKADQ222065L0	LR17220	LRAD2521600	LRADQ3319650
DLR2918100	DRKAD2517400	DRKADQ222065R0	LR19180	LRAD2521650	LRADQ3321500
DLRQ1722100	DRKAD2517402FRM	DRKADQ2517400	LR19190	LRAD2522400	LRADQ3321550
DLRQ1919100	DRKAD251740FR4	DRKADQ2517450	LR22193	LRAD2522450	LRADQ3321600
DLRQ2219100	DRKAD2517450	DRKADQ2517500	LR25190	LRAD2522500	LRADQ3321650
DLRQ2522100	DRKAD2517452FRM	DRKADQ251750FR4	LR25210	LRAD2522550	LRADQ3322500
DLRS3322120	DRKAD251745FR4	DRKADQ2517550	LR25220	LRAD2522600	LRADQ332250MR2
DRKAD2217400	DRKAD2517500	DRKADQ2517600	LR29180	LRAD2522650	LRADQ3322550
DRKAD2217450	DRKAD2517502FRM	DRKADQ2517650	LR29220	LRAD2918400	LRADQ3322600
DRKAD2217500	DRKAD251750FR4	DRKR22170	LRAD1720400	LRAD2918500	LRADQ3322650
DRKAD2217550	DRKAD2517550	DRKR22200	LRAD1720500	LRAD2918550	LRQ17200
DRKAD2217600	DRKAD2517552FRM	DRKR22202FRM	LRAD1720550	LRAD2918600	LRQ19190
DRKAD2217650	DRKAD251755FR4	DRKR2220L0	LRAD1720600	LRAD2918650	LRQ22190

DRKAD2220400	DRKAD2517600	DRKR2220R0	LRAD1720650	LRAD2922500	LRQ25190
DRKAD2220402FRM	DRKAD2517602FRM	DRKR25170	LRAD1722400	LRAD2922550	LRQ25220
DRKAD222040FR2	DRKAD251760FR4	DRKR25172FRM	LRAD1722500	LRAD2922600	LRQ31220
DRKAD222040FR4	DRKAD2517650	DRKR2517FR4	LRAD1722550	LRAD2922650	LWDB332284N
DRKAD222040R0	DRKAD2517652FRM	DRKRQ2220R0	LRAD1722600	LRAD3122400	LWSB252284
DRKAD2220450	DRKAD251765FR4	DRKRQ25170	LRAD1722650	LRAD3122450	PLA1919100
DRKAD2220452FRM	DRKADQ2217400	DRKRQ25172FRM	LRAD1919400	LRAD3122500	PSR17200
DRKAD222045FR4	DRKADQ2217450	DRKRQ2517FR2	LRAD1919450	LRAD3122550	PSR22190
DRKAD222045L0	DRKADQ2217500	DRKRQ2517FR4	LRAD1919500	LRAD3122600	PSR25220
DRKAD222045R0	DRKADQ2217550	DSE233224	LRAD1919550	LRAD3122650	PSR31220
DRKAD2220500	DRKADQ2217600	DSEW10233220	LRAD1919600	LRADQ1522550	PSR33190
DRKAD2220502FRM	DRKADQ2217650	DSEW4023322	LRAD1919650	LRADQ1919400	PSRADQ191955L0
DRKAD222050FR4	DRKADQ2220400	DSEW40233220	LRAD221940	LRADQ2219550	PSRADQ191955R0
DRKAD222050L0	DRKADQ222040FR2	DSEW4023322MR2	LRAD2219400	LRADQ2219600	PSRQ22190
DRKAD222050R0	DRKADQ222040L0	ESE2020100	LRAD2219450	LRADQ2219650	PSRS33220
DRKAD2220550	DRKADQ222040R0	GE233210	LRAD2219500	LRADQ2521400	
DRKAD2220552FRM	DRKADQ2220450	HDDB332281	LRAD2219550	LRADQ2522550	