SLOAN®
Water Connects Us®

VERIFIED by SCS Global Services
ENVIRONMENTAL PRODUCT DECLARATION
BASED ON LCA

Declaration Owner
Sloan Valve Company
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Product
Sloan Bottle Fillers

Functional Unit
1 packaged, installed unit with a Reference Service Life of 10 years in a building with an Estimated Service Life of 75 years

EPD Number and Period of Validity
SCS-EPD-10284
EPD Valid October 29, 2024 through October 28, 2029

Product Category Rule
UL. PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 4. December 2022.
UL PCR Guidance for Building-Related Products and Services Part B: Kitchen and Bath Fixture Fittings and Accessory Products EPD Requirements. Version 1.0. October 2020

Program Operator
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SCSglobal SERVICES

Declaration owner:	Sloan Valve Company
Address:	10500 Seymour Avenue, Franklin Park, IL 60131
Declaration Number:	*SCS-EPD-10284*
Declaration Validity Period:	*October 29, 2024 through October 28, 2024*
Program Operator:	SCS Global Services
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide
LCA Practitioner:	Riley Tesman, SCS Global Services
LCA Software and LCI database:	OpenLCA 2.1.1 software and the Ecoinvent v3.10 database
Product's Intended Application:	For use with plumbing systems to deliver and drain water.
Product RSL:	10 Years (ESL 75 Years)
Markets of Applicability:	North America
EPD Type:	Product-Specific
EPD Scope:	Cradle-to-Grave
LCIA Method and Version:	CML-IA Baseline and TRACI 2.1
Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071	☐ internal ☒external
LCA Reviewer:	Lindita Bushi Lindita Bushi, PhD, Athena Sustainable Materials Institute
Part A Product Category Rule:	UL. PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 4. December 2022.
Part A PCR Review conducted by:	Lindita Bushi, PhD (Chair); Hugues Imbeault-Tétreault, ing., M.Sc.A.; Jack Geibig
Part B Product Category Rule:	UL PCR Guidance for Building-Related Products and Services Part B: Kitchen and Bath Fixture Fittings and Accessory Products EPD Requirements. Version 1.0. October 2020
Part B PCR Review conducted by:	Thomas Gloria (Chair), Industrial Ecology Consultants; Christopher Marozzi, Lixil Water Technologies Americas; Kim Lewis, Sustainable Minds
Independent verification of the declaration and data, according to ISO 14025, ISO 21930, and the PCR	☐ internal ☒ external
EPD Verifier:	Lindita Bushi Lindita Bushi, PhD, Athena Sustainable Materials Institute
Declaration Contents:	

Disclaimers: *This EPD conforms to ISO 14025, 14040, 14044, and ISO 21930.*

Scope of Results Reported: *The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions.*

Accuracy of Results: *Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy.*

Comparability: *The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.*

In accordance with ISO 21930:2017, EPDs are comparable only if they comply with the core PCR, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works.

1. ABOUT Sloan

Sloan is the world's leading manufacturer of commercial plumbing systems and has been in operation since 1906. Headquartered in Franklin Park, Illinois, USA, the company is at the forefront of the green building movement and provides smart, sustainable restroom solutions by manufacturing water-efficient products such as flushometers, electronic faucets, sink systems, soap dispensing systems, and vitreous china fixtures for commercial, industrial, and institutional markets worldwide. The Sloan bottle fillers are manufactured in Tijuana, Mexico.

2. PRODUCT

2.1 Product Description

A bottle filler is a fitting designed for discharge of a specific volume of water that is turned on electronically and intended to be installed in non-residential locations that are exposed to walk-in traffic. The volume or cycle duration can be fixed or adjustable. Four Sloan bottle fillers are considered within this EPD. Sloan's DropSpot™ products come in a DropSpot™ 110 and DropSpot™ 120 line each with a stainless steel (SS) and black powder coated (BLK) variant. Sloan Bottle fillers belong to the Commercial Plumbing Fixtures specification code, CSI code 22 42 16 and the UNSPSC code 30181700.

Sloan's DropSpot™ On-wall Bottle Filler is uniquely designed with style to promote sustainable drinking practices. It is available in both stainless and black finishes. With its touch-free sensor operated bottle filler, backed by Sloan's cutting edge sensor technology, this unit provides a hygienic bottle filling experience. DropSpot™ products are ADA compliant when installed properly and have up to 1.2 gpm fill rate that offers quick fill. Soft ambient white light indicates filter status, and a backlit LED light illuminates bottle filling area when sensor is activated. Bottle counter display indicates the number of 16 oz plastic bottles saved as well as the ounces of water dispensed for water consumption tracking. Rough-in installation schematics match other manufacturers' for easy replacement. Anti-microbial push bar and bubbler offers hygienic usage and ease of cleaning. Patent pending push bar is activated with any touch point and provides easy access for cartridge replacement. Drop-down door assembly provides easy access to filter for maintenance and filter change. The product system under study does not include a faucet, as these are covered by a separate Product Category Rule (PCR).

Table 1. *Sloan DropSpot™ modeled and features included in EPD.*

Models Included	Model Image	Features
DRS110-UNFIL-REF-SS		■ Touch-free sensor operated bottle filler with 20 second max run time ■ ADA compliant when installed properly ■ Up to 1.2 gpm fill rate for quick fill ■ Laminar flow water supply ■ Soft ambient white light to indicate filter status ■ Backlit LED light that illuminates bottle filling area when sensor is activated ■ Bottle Counter Display indicates the number of 16 oz plastic bottles saved as well as the ounces of water dispensed for water consumption tracking ■ Rough-in matches other manufacturers' for easy replacement
DRS110-UNFIL-REF-BLK		■ Touch-free sensor operated bottle filler with 20 second max run time ■ ADA compliant when installed properly ■ Up to 1.2 gpm fill rate for quick fill ■ Laminar flow water supply ■ Soft ambient white light to indicate filter status ■ Backlit LED light that illuminates bottle filling area when sensor is activated ■ Bottle Counter Display indicates the number of 16 oz plastic bottles saved as well as the ounces of water dispensed for water consumption tracking ■ Rough-in matches other manufacturers' for easy replacement
DRS120-UNFIL-REF-SS		■ Touch-free sensor operated bottle filler with 20 second max run time ■ ADA compliant when installed properly ■ Up to 1.2 gpm fill rate for quick fill Laminar flow water supply Soft ambient white light to indicate filter status ■ Backlit LED light illuminates bottle filling area when sensor is activated ■ Bottle Counter Display indicates the number of 16 oz plastic bottles saved from a land fill as well as the ounces of water dispensed for water consumption tracking
DRS120-UNFIL-REF-BLK		■ Touch-free sensor operated bottle filler with 20 second max run time ■ ADA compliant when installed properly ■ Up to 1.2 gpm fill rate for quick fill ■ Laminar flow water supply ■ Soft ambient white light to indicate filter status ■ Backlit LED light illuminates bottle filling area when sensor is activated ■ Bottle Counter Display indicates the number of 16 oz plastic bottles saved as well as the ounces of water dispensed for water consumption tracking

2.2 Flow Diagram

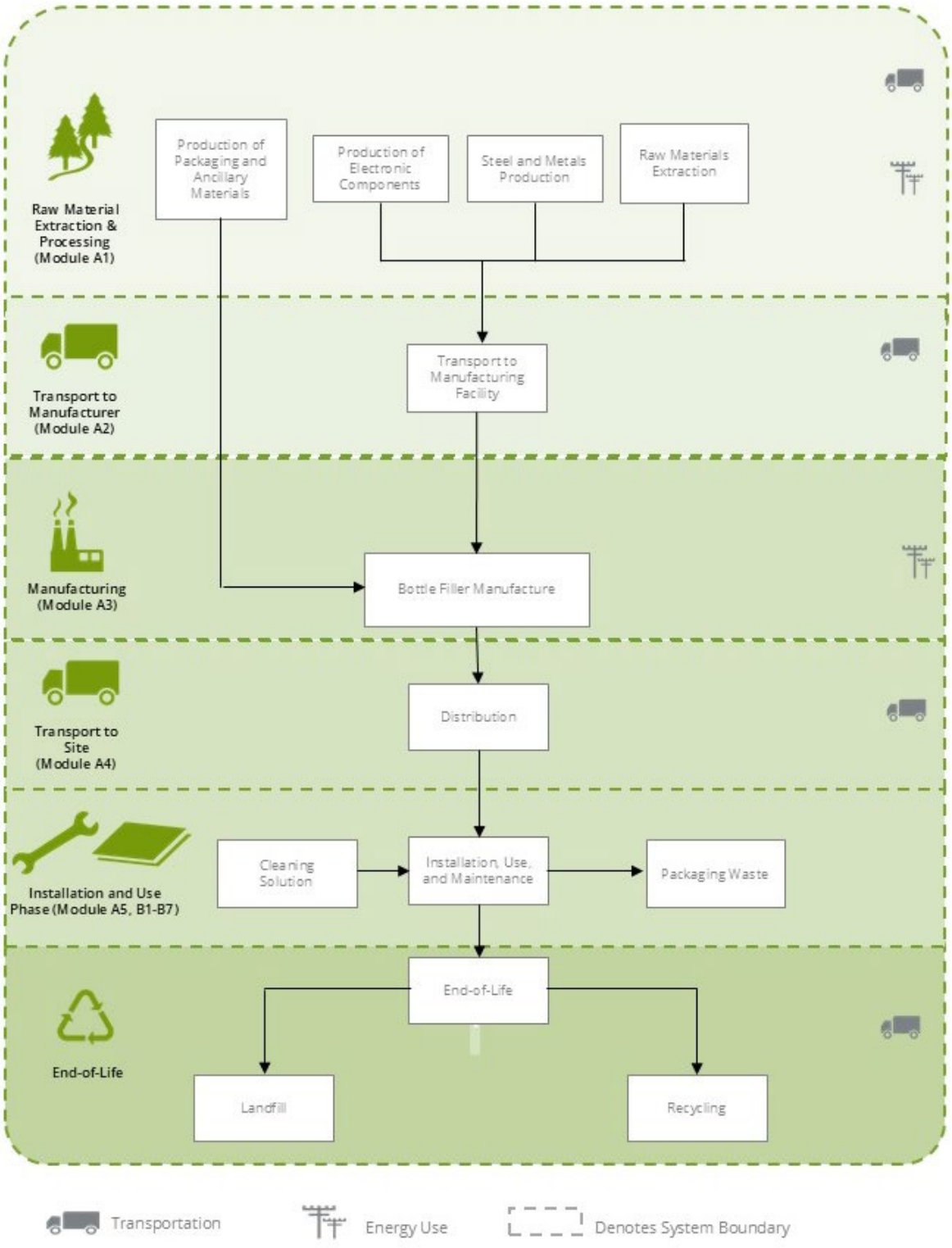

Figure 1. *Flow diagram for the Sloan DropSpot™ Bottle Fillers.*

2.3 Application

Sloan DropSpot™ Bottle Fillers are installed in commercial, industrial, and institutional markets worldwide and are designed for use with plumbing systems to deliver drinking water.

2.4 Declaration of Methodological Framework

The scope of the EPD is cradle-to-grave, including raw material extraction and processing; raw material transportation; product manufacture, including packaging; product distribution; installation; use; and end-of-life.

Manufacturing resource use was allocated to the products based on mass. Impacts from transportation were allocated based on the mass of material and distance transported.

Consistent with the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. No known flows were deliberately excluded from this EPD.

2.5 Technical Requirements

Table 2. *Sloan DRS 110 Technical Requirements. Available in Black and Stainless Steel finishes.*

Property	Unit	Value
Width	mm	483
Length	mm	483
Height	mm	1,006
Maximum flow rate	GPM	1.2

Table 3. *Sloan DRS 120 Technical Requirements. Available in Black and Stainless Steel finishes.*

Property	Unit	Value
Width	mm	483
Length	mm	965
Height	mm	1,006
Maximum flow rate	GPM	1.2

2.6 Market Placement/Application Rules

The products declared in this document comply with the following codes or regulations:

- ANSI A117.1 – Accessible and Usable Buildings and Facilities

2.7 Properties of Declared Product as Delivered

Sloan bottle fillers are delivered by truck to the installation site.

The total nominal weight of the DropSpot 110 product with packaging and stainless steel finish is 34.7 kg and 39.5 kg for the black powder coated version. The nominal dimensions of the DropSpot 110 products are: **Height** 39 ⅜" (1,006 mm), **Width** 19" (483 mm), **Length** 19" (483 mm).

The total nominal weight of DropSpot 120 product with packaging and stainless steel finish is 49.9 kg and 54.4 kg for the black powder coated version. The nominal dimensions of the DropSpot 120 products are: **Height** 39 ⅜" (1,006 mm), **Width** 19" (483 mm), **Length** 19" (965 mm).

2.8 Material Composition

The main product materials for the average product are presented in Table 3. Product materials were reviewed for the presence of any toxic or hazardous chemicals. Based on a review of the product components provided by the manufacturer, no regulated chemicals were identified in the product or product components.

Table 3. *Sloan Bottle Filler Material Components.*

Material	DropSpot™ 110 SS		DropSpot™ 110 BLK		DropSpot™ 120 SS		DropSpot™ 120 BLK	
	Mass (kg)	Percentage of Total Mass	Mass (kg)	Percentage of Total Mass	Mass (kg)	Percentage of Total Mass	Mass (kg)	Percentage of Total Mass
BCD Board	0.110	0.35%	0.110	0.35%	0.110	0.25%	0.110	0.25%
Sensor Assembly	0.025	0.08%	0.025	0.08%	0.025	0.06%	0.025	0.06%
Foam Insulation	0.128	0.40%	0.128	0.40%	0.128	0.29%	0.128	0.29%
Plastic PVC (Drain)	0.041	0.13%	0.041	0.13%	0.041	0.09%	0.041	0.09%
Plastic ABS	0.552	1.75%	0.552	1.75%	0.552	1.27%	0.552	1.27%
Power Supply	0.091	0.29%	0.091	0.29%	0.091	0.21%	0.091	0.21%
Compressor	7.501	23.8%	7.50	23.8%	7.50	17.3%	7.50	17.3%
Solenoyde Valve	0.012	0.04%	0.012	0.04%	0.012	0.03%	0.012	0.03%
Galvanized Steel	12.7	34.2%	18.7	59.1%	16.6	38.2%	16.6	38.2%
Copper Evaporator	0.740	1.99%	0.629	1.99%	0.622	1.44%	0.622	1.44%
Stainless Steel	13.2	35.6%	2.95	9.35%	17.2	39.8%	17.2	39.8%
Electrolyte Formula MSC1	0.085	0.27%	0.085	0.27%	0.085	0.20%	0.085	0.20%
Cork Rubber Blend Tape	0.236	0.75%	0.236	0.75%	0.236	0.55%	0.236	0.55%
Suva R134A	0.120	0.38%	0.110	0.35%	0.110	0.25%	0.110	0.25%
Black Polyester Powder Coat	-		0.424	1.34%	-	-	0.704	-
Total	**31.6**	**100%**	**31.5**	**100%**	**43.3**	**100%**	**44.1**	**100%**

2.9 Manufacturing

Sloan bottle fillers are manufactured in Tijuana, Mexico. Raw materials, including electronic components, steel, mechanical components, and additional materials such as foam insulation and plastics. The final products are then sorted and packaged for distribution.

2.10 Transportation

Distribution information was not available and therefore, an estimate was utilized to model sale and distribution of Sloan bottle fillers to various locations in the United States. An average of the distance to the five largest cities in the United States was utilized to estimate the transport of the bottle fillers from the manufacturing facility to distribution centers. Transportation from distribution centers to installation sites in the United States are assumed to be 500 km by truck, consistent with the PCR requirements.

2.11 Installation

Installation of the lavatories is completed using manual labor and does not require additional ancillary materials. Waste is generated from the disposal of packaging material at the installation site.

2.12 Packaging

Table 4. *Sloan Bottle Filler Packaging Components.*

Material	DropSpot™ 110 SS		DropSpot™ 110 BLK		DropSpot™ 120 SS		DropSpot™ 120 BLK	
	Mass (kg)	Percentage of Total Mass	Mass (kg)	Percentage of Total Mass	Mass (kg)	Percentage of Total Mass	Mass (kg)	Percentage of Total Mass
Cardboard	2.79	90.3%	6.18	78.0%	4.94	73.8%	8.53	83.1%
Tape	0.100	3.24%	0.100	1.30%	0.100	1.51%	0.100	0.97%
Wood Pallet	0.200	6.47%	0.200	20.7%	1.64	24.7%	1.64	16.0%
Total	**2.35**	**100%**	**7.92**	**100%**	**6.64**	**100%**	**10.3**	**100%**

2.13 Use Conditions

Water use impacts were modeled following guidance from the Part B PCR for a commercial water filler. Energy usage data was not available and therefore, a study provided by the North Carolina Department of Environmental Quality[1] was utilized to model the energy usage of Sloan bottle fillers.

2.14 Product Reference Service Life and Building Estimated Service Life

The PCR establishes a Reference Service Life for bottle fillers of 10 years. The PCR also establishes an Estimated Service Life of the building to be 75 years, for use in the use phase modelling to fulfill the required performance and functionality over the construction works.

2.15 Re-Use Phase

It is assumed that no materials or bottle fillers are recovered and processed for re-use.

2.16 Disposal

It is assumed that bottle fillers at end-of-life are disposed of in a landfill. Transportation of bottle fillers assumes a 100-kilometer distance to disposal as specified in the PCR.

3. LCA Calculation Rules

3.1 Functional Unit

The functional unit used in the study is one (1) packaged and installed unit with a reference service life (RSL) of 10 years to be installed in a building with an estimated service life (ESL) assumed to be 75-years.

[1] Drinking Fountains and Water Coolers Energy Fact Sheet. NC Dept of Environmental Quality, 2010 chrome-https://www.deq.nc.gov/environmental-assistance-and-customer-service/ias-energy-efficiency/opportunities/drinking-fountains/download

Table 5. *Sloan Bottle Filler Functional Unit Properties.*

Property	Unit	DropSpot™ 110 SS	DropSpot™ 110 BLK	DropSpot™ 120 SS	DropSpot™ 120 BLK
Functional Unit		One (1) packaged, installed product			
RSL	Years	10	10	10	10
ESL	Years	75	75	75	75
Mass including packaging	kg	34.7	39.0	49.9	53.7
Flush rate	m^3/sec	N/A	N/A	N/A	N/A
Flow rate	m^3/sec	1.2	1.2	1.2	1.2

3.2 System Boundary

The scope of the EPD is cradle-to-grave, including raw material extraction and processing; raw material transportation; product manufacture, including packaging; product distribution; installation; use; and end-of-life.

Table 6. *Sloan Bottle Fillers System Boundaries.*

Product			Construction Process		Use							End-of-life				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 extraction and processing	Transport to manufacturer	Manufacturing	Transport	Construction - installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery and/or recycling potential
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

X = Included in system boundary
MND = Module not declared

3.3 Product Specific Calculations for Use Phase (Modules B1-B7)

Sloan Bottle Fillers are assumed to require daily cleaning with a 10 ml of 1% sodium lauryl sulfate solution.

Water usage was modeled following guidance of the Part B PCR and shown in Table 13. Primary data for energy usage of bottle fillers was not available and therefore modeled based on drinking fountain electricity usage provided by the North Carolina Department of Environmental Quality.

3.4 Estimates and Assumptions

- Specific data were not available on the BCD Boards, sensors, power supply, solenoid valve and compressors in the bottle fillers. Secondary datasets for a were used from the Ecoinvent database to best represent the data in the LCA model.

- Secondary datasets for electronic components and printed wiring board were used from the Ecoinvent database to represent the BCD Boards materials in the LCA model. An assumption of 80% printed wiring board to 20% electronic components was utilized.
- Product transport from point of production to the building site is assumed to be 500 km by truck as required by the Part B PCR.
- Product transport from the Sloan distribution centers was not available, therefore products were assumed to be distributed to the five largest cities across the United States.
- Installation of the products is assumed to be manual, using hand tools, requiring no additional materials or energy use.
- Transport of the packaging waste at installation is assumed to be 100 km by truck as required by the Part B PCR.
- Transport of the product at end-of-life to waste processing and disposal is assumed to be 100 km by truck as required by the Part B PCR.
- The Reference Service Life (RSL) of the products was modeled as 10 years, as required by the Part B PCR.
- The maintenance of the products is assumed to include daily cleaning with a cleaning solution of 10 ml of 1% sodium lauryl sulfate solution as specified in the Part B PCR. A dataset for sodium lauryl sulfate was not available and a dataset for cleaning consumables was utilized instead.
- The products are assumed to require no replacement, repair, or refurbishment during the 10-year RSL, but in accordance with the Part A PCR and Part B PCR, requires replacement 6.5 times over the 75-year ESL.
- The use phase modules are modeled for the building/construction works ESL of 75 years.
- Data on energy usage for the Bottle Fillers was not available and estimated based on drinking fountain electricity usage provided by the North Carolina Department of Environmental Quality.
- For the product end-of-life, disposal of product is assumed to follow the disposal scenario indicated in the Part A PCR.

3.5 Cut-off Rules

According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. No data gaps were allowed which were expected to significantly affect the outcome of the indicator results.

3.6 Data Sources

Primary data were provided by Sloan for the Tijuana, Mexico facility. The principal source of secondary LCI data is the Ecoinvent 3.10 database.

Table 7. *LCI datasets and associated databases used to model the Sloan Bottle Fillers.*

Component	Dataset	Data Source	Publication Date
Product			
BCD Board	market for electronic component, active, unspecified | electronic component, active, unspecified | Cutoff, U - GLO	Ecoinvent 3.10	2023
	market for printed wiring board, surface mounted, unspecified, Pb free | printed wiring board, surface mounted, unspecified, Pb free | Cutoff, U - GLO	Ecoinvent 3.10	2023
Sensor Assembly	market for electronic component, active, unspecified | electronic component, active, unspecified | Cutoff, U - GLO	Ecoinvent 3.10	2023
Foam Insulation	market for polyurethane, flexible foam | polyurethane, flexible foam | Cutoff, U - RoW	Ecoinvent 3.10	2023
Plastic PVC (Drain)	polyvinylchloride production, suspension polymerisation | polyvinylchloride, suspension polymerised | Cutoff, U	Ecoinvent 3.10	2023
	market for extrusion, plastic pipes | extrusion, plastic pipes | Cutoff, U - GLO	Ecoinvent 3.10	2023
Plastic ABS (alcove, push bar)	acrylonitrile-butadiene-styrene copolymer production | acrylonitrile-butadiene-styrene copolymer | Cutoff, U	Ecoinvent 3.10	2023
Power supply	market for power supply unit, for desktop computer | power supply unit, for desktop computer | Cutoff, U - GLO	Ecoinvent 3.10	2023
Compressor	market for air compressor, screw-type compressor, 4kW | air compressor, screw-type compressor, 4kW | Cutoff, U - GLO	Ecoinvent 3.10	2023
Solenoid Valve	market for brass | brass | Cutoff, U - RoW	Ecoinvent 3.10	2023
	market for casting, brass | casting, brass | Cutoff, U - GLO	Ecoinvent 3.10	2023
Galvanized Steel	market for steel, low-alloyed | steel, low-alloyed | Cutoff, U - GLO	Ecoinvent 3.10	2023
	market for zinc coat, pieces | zinc coat, pieces | Cutoff, U - GLO	Ecoinvent 3.10	2023
Copper (Evaporator)	market for copper, cathode | copper, cathode | Cutoff, U - GLO	Ecoinvent 3.10	2023
Stainless Steel	market for steel, chromium steel 18/8 | steel, chromium steel 18/8 | Cutoff, U - GLO	Ecoinvent 3.10	2023
Electrolyte Formula MSC1	market for chemical, organic | chemical, organic | Cutoff, U - GLO	Ecoinvent 3.10	2023
	market for citric acid | citric acid | Cutoff, U - GLO	Ecoinvent 3.10	2023
	market for sodium sulfate, anhydrite | sodium sulfate, anhydrite | Cutoff, U - RoW	Ecoinvent 3.10	2023
	market for water, deionised | water, deionised | Cutoff, U - RoW	Ecoinvent 3.10	2023
Cork/Rubber Blend Tape	market for cork, raw | cork, raw | Cutoff, U - RoW	Ecoinvent 3.10	2023
	market for polyurethane adhesive | polyurethane adhesive | Cutoff, U - GLO	Ecoinvent 3.10	2023
	market for synthetic rubber | synthetic rubber | Cutoff, U - GLO	Ecoinvent 3.10	2023
Suva R134A	market for refrigerant R134a | refrigerant R134a | Cutoff, U - GLO	Ecoinvent 3.10	2023
Black Polyester Powder Coat	market for coating powder | coating powder | Cutoff, U - RoW	Ecoinvent 3.10	2023
Package			
Cardboard	market for corrugated board box production | corrugated board box | Cutoff, U		
Tape	market for extrusion, plastic film | extrusion, plastic film | Cutoff, U - GLO		
	market for synthetic rubber | synthetic rubber | Cutoff, U - GLO		
Wood Pallet	market for printed paper, offset | printed paper, offset | Cutoff, U		
Ancillary			

Component	Dataset	Data Source	Publication Date
Stainless Steel Cleaner and Polisher	market for chemical, inorganic | chemical, inorganic | Cutoff, U - GLO	Ecoinvent 3.10	2023
Degreaser	market for chemical, inorganic | chemical, inorganic | Cutoff, U - GLO	Ecoinvent 3.10	2023
Oxygen	market for oxygen, liquid | oxygen, liquid | Cutoff, U - RoW	Ecoinvent 3.10	2023
Transport			
Ship	market for transport, freight, sea, container ship | transport, freight, sea, container ship | Cutoff, U - GLO	Ecoinvent 3.10	2023
Truck	market for transport, freight, lorry 16-32 metric ton, EURO4 | transport, freight, lorry 16-32 metric ton, EURO4 | Cutoff, U - RoW	Ecoinvent 3.10	2023
Manufacture			
Electricity	market for electricity, medium voltage | electricity, medium voltage | Cutoff, U - MX	Ecoinvent 3.10	2023
Propane	market for heat, district or industrial, natural gas | heat, district or industrial, natural gas | Cutoff, U - RoW	Ecoinvent 3.10	2023
Natural Gas	heat production, natural gas, at industrial furnace >100kW | heat, district or industrial, natural gas | Cutoff, U - RoW	Ecoinvent 3.10	2023
Water	market for tap water | tap water | Cutoff, U - RoW	Ecoinvent 3.10	2023
Use			
Cleaning Consumable (B2)	market for cleaning consumables, without water, in 13.6% solution state | cleaning consumables, without water, in 13.6% solution state | Cutoff, U - GLO	Ecoinvent 3.10	2023
Electricity (B6)	market group for electricity, medium voltage | electricity, medium voltage | Cutoff, U - US	Ecoinvent 3.10	2023
Water (B7)	market for tap water | tap water | Cutoff, U - RoW	Ecoinvent 3.10	2023
Waste			
Hazardous Waste	market for hazardous waste, for incineration | hazardous waste, for incineration | Cutoff, U - RoW	Ecoinvent 3.10	2023
Landfill	market for inert waste, for final disposal | inert waste, for final disposal | Cutoff, U	Ecoinvent 3.10	2023
Electrical Waste	treatment of waste, electrical and electronic cables, open burning | waste, electrical and electronic cables | Cutoff, U - RoW	Ecoinvent 3.10	2023

3.7 Data Quality

Table 8. *Data Quality Assessment.*

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	The manufacturer provided primary data on product manufacturing for the Sloan facility in Tijuana, Mexico on annual production for 2023. Representative datasets (secondary data) for upstream and background processes are generally less than 5 years old.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	The data used in the analysis provide the best possible representation available with current data. Electricity use for product manufacture is modeled using representative data modelled for the specific electricity grid in Mexico represented in this study. Surrogate data used in the assessment are representative of global or European operations and are considered sufficiently similar to actual processes.
Technology Coverage: Specific technology or technology mix	For the most part, data are representative of the actual technologies used for processing, transportation, and manufacturing operations. Representative component datasets, specific to the type of material, are used to represent the actual processes, as appropriate.
Precision: Measure of the variability of the data values for each data expressed	Precision of results are not quantified due to a lack of data. Data collected for operations were typically averaged for one more years and over multiple operations, which is expected to reduce the variability of results.
Completeness: Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of the products. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	Data used in the assessment represent typical or average processes as currently reported from multiple data sources and are therefore generally representative of the range of actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The consistency of the assessment is considered to be high. Data sources of similar quality and age are used; with a bias towards Ecoinvent v3.10 data where available. Different portions of the product life cycle are equally considered.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Based on the description of the data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.
Sources of the Data: Description of all primary and secondary data sources	Data representing energy use at the manufacturing facility represents a 12-month average and is considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. For secondary LCI data, Ecoinvent v3.10 data are used.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	Uncertainty related to materials in the products and packaging is low. Actual supplier data for upstream operations was not available for all suppliers and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<10 years) but lacked geographical representativeness. Uncertainty related to the impact assessment methods used in the study are high. The impact assessment methodology includes impact potentials, which lack characterization of providing and receiving environments or tipping points.

3.8 Period under review

The period of review is based on a 12-month period from January 2023 through December 2023.

3.9 Allocation

Manufacturing resource use was allocated to the products based on mass. Impacts from transportation were allocated based on the mass of material and distance transported.

3.10 Comparability

The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

4. LCA: TECHNICAL INFORMATION AND SCENARIOS

4.1 Transport to the Building Site (A4)

Table 9. *Sloan Bottle Fillers Transportation Summary.*

Name	Unit	DropSpot™ 110 SS	DropSpot™ 110 BLK	DropSpot™ 120 SS	DropSpot™ 120 BLK
Fuel type	-	Diesel	Diesel	Diesel	Diesel
Liters of fuel	l/100 km	18.7	18.7	18.7	18.7
Vehicle Type	-	Freight Truck	Freight Truck	Freight Truck	Freight Truck
Transport Distance	km	2,705	2,705	2,705	2,705
Capacity utilization	%	50	50	50	50
Gross mass of products transported[1]	kg	34.7	39.5	49.9	54.4

[1] including packaging

4.2 Installation into the Building (A5)

Table 10. *Sloan Bottle Fillers Installation Summary.*

Name	Unit	DropSpot™ 110 SS	DropSpot™ 110 BLK	DropSpot™ 120 SS	DropSpot™ 120 BLK
Ancillary materials	kg	0	0	0	0
Net freshwater consumption specified by water source and fate	m^3	0	0	0	0
Other resources	kg	0	0	0	0
Electricity consumption	kwh	0	0	0	0
Other energy carriers	MJ	0	0	0	0
Product loss per functional unit	kg	0	0	0	0
Waste materials at the construction site before waste processing, generated by product installation	kg	0	0	0	0
Output materials resulting from on-site waste processing	kg	0	0	0	0
Mass of packaging waste specified by type	kg	3.09	7.92	6.64	10.3
Recycle	Kg	2.09	4.64	3.68	6.40
Landfill	kg	0.858	2.98	2.72	3.45
Incineration	kg	0.140	0.309	0.245	0.427
Biogenic carbon contained in packaging	kg CO_2	5.48	14.3	12.0	18.6
Direct emissions to ambient air, soil, and water	kg	0	0	0	0

4.3 Use

Maintenance (B2)

Table 11. *Sloan Bottle Filler Maintenance Summary.*

Maintenance	Unit	Value
Description of process	-	Daily cleaning with 10 ml 1% sodium lauryl sulfate solution
Maintenance cycle	Cycles/RSL	3,650
Maintenance cycle	Cycles/ESL	27,375
Net freshwater consumption		
City water disposed to sewer	m^3	0
Ancillary materials		
Sodium lauryl sulfate solution	kg/RSL	36.5
Other resources	kg	0
Electricity consumption	kWh	0
Other energy carriers	kWh	0
Power output of equipment	kW	0
Material loss	kg	0
Direst emissions to ambient air, soil, and water	kg	0
Further assumptions for scenario development	-	-

Repair (B3)

No repair is required with the use of the product over the reference service lifetime.

Replacement (B4)

Table 12. *Sloan Bottle Filler Replacement Summary.*

Replacement	Unit	DropSpot™ 110 SS	DropSpot™ 110 BLK	DropSpot™ 120 SS	DropSpot™ 120 BLK
Replacement cycle (RSL)	Number/RSL	10	10	10	10
Replacement cycle (ESL/RSL)-1	Number/ESL	6.5	6.5	6.5	6.5
Electricity consumption	kWh	0	0	0	0
Net freshwater consumption	m^3	0	0	0	0
Ancillary materials	kg	0	0	0	0
Replacement of worn parts (per RSL)	kg	0	0	0	0
Replacement of worn parts (per ESL)	kg	205	205	281	287
Direct emissions to ambient air, soil, and water	kg	0	0	0	0
Further assumptions for scenario development	-	-	-	-	-

Refurbishment (B5)

No refurbishment is required with the use of the product over the reference service lifetime.

Operational Energy and Water Use (B6 – B7)

There is no operational energy or water use associated with the use of the product over the reference service lifetime.

Table 13. *Sloan Bottle Filler Use Summary.*

Operational Energy and Water Use	Unit	Bottle Filler Products 8 ounces per use
Net freshwater consumption		
City water	m^3/year	3.54
City water (Per RSL)	m^3/RSL	35.4
City water (Per ESL)	m^3/ESL	265.5
Ancillary materials	kg	0
Energy input (per year)	kWh	562
Energy input (per RSL)	kWh/RSL	5,620
Energy input (per ESL)	kWh/ESL	42,150
Equipment power output	kW	0
Characteristic performance	-	-
Direct emissions to ambient air, soil, water	kg	0
Further assumptions for scenario development (per PCR)	Water use is assumed 100% cold water at a volume of 8 ounces. Electricity usage assumed based on drinking fountain energy usage per North Carolina department of environmental quality.	
Number of users per day	60	
Number of uses per user per day	1	
Number of use days per year	260	

4.4 End-of-Life

Table 13. *Sloan Bottle Filler End-of-Life Summary.*

End-of-life		Unit	Value			
Assumptions for scenario development			Manual deconstruction, followed by 100 km truck transport to final disposal in landfill			
Collection process	Collected separately	kg	0	0	0	0
	Collected with mixed construction waste	kg	31.6	31.5	43.3	44.1
Recovery	Reuse	kg	0	0	0	0
	Recycling	kg	0	0	0	0
	Energy recovery	kg	0	0	0	0
	Landfill	kg	31.6	31.5	43.3	44.1

5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. The following environmental impact category indicators are reported using characterization factors using the CML-IA impact assessment method and the TRACI 2.1 impact assessment method.

Table 14. *Mandatory Environmental Impact Assessment Categories.*

CMLI-A Impact Category	Unit	TRACI 2.1 Impact Category	Unit
GWP: Global Warming Potential	kg CO_2 eq.	**GWP:** Global Warming Potential	kg CO_2 eq.
ODP: Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.	**ODP:** Depletion potential of the stratospheric ozone layer	kg CFC 11 eq.
AP: Acidification Potential of soil and water	kg SO_2 eq.	**AP:** Acidification Potential of soil and water	kg SO_2 eq.
EP: Eutrophication Potential	kg PO_4^{3-} eq.	**EP:** Eutrophication Potential	kg N eq.
POCP: Photochemical Oxidant Creation Potential	kg C_2H_4 eq.	**SFP:** Smog Formation Potential	kg O_3 eq.
ADPE: Abiotic Depletion Potential, elements	kg Sb eq	**FFD:** Fossil Fuel Depletion	MJ Surplus
ADPF: Abiotic Depletion Potential, fossil fuels	MJ		

These impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes. The following inventory parameters, specified by the PCR, are also reported.

Table 15. *Additional Transparency Categories.*

Resources	Unit	Waste and Outflows	Unit
RPR_E: Renewable primary resources used as energy carrier (fuel)	MJ, LHV	**HWD:** Hazardous waste disposed	kg
RPR_M: Renewable primary resources with energy content used as material	MJ, LHV	**NHWD:** Non-hazardous waste disposed	kg
$NRPR_E$: Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	**RWD:** Radioactive waste, conditioned, to final repository	kg
$NRPR_M$: Non-renewable primary resources with energy content used as material	MJ, LHV	**CRU:** Components for re-use	kg
SM: Secondary materials	kg	**MR:** Materials for recycling	kg
RSF: Renewable secondary fuels	MJ, LHV	**MER:** Materials for energy recovery	kg
NRSF: Non-renewable secondary fuels	MJ, LHV	**EE:** Recovered energy exported from the product system	kg
RE: Recovered energy	MJ, LHV	**EE:** Recovered energy exported from the product system	MJ, LHV
FW: Use of new freshwater resources	m^3	-	-

All LCA results are stated to three significant figures in agreement with the PCR for this product and therefore the sum of the total values may not exactly equal 100%. Modules with zero (0) impacts: B1, B3, B5, C1, and C3 are omitted from the results tables to conserve space.

Table 16. *Impact indicator results for Sloan DropSpot™ 110 SS.*

CML Impact Method	GWP	ODP	AP	EP	POCP	ADPE	ADPF
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg PO_4^{3-} eq	kg C_2H_4 eq	kg Sb eq	MJ
A1	501	$1.00x10^{-4}$	2.50	1.51	0.183	0.009	5,013
A2	1.13	$1.34x10^{-8}$	$5.02x10^{-3}$	$1.33x10^{-3}$	$2.10x10^{-4}$	$1.53x10^{-6}$	15.6
A3	26.2	$4.23x10^{-7}$	0.04	0.04	$2.66x10^{-3}$	$2.40x10^{-5}$	173
A1-A3 Total:	**528**	**$1.00x10^{-4}$**	**2.55**	**1.55**	**0.186**	**$8.70x10^{-3}$**	**5,202**
A4	18.1	$2.16x10^{-7}$	0.06	0.02	0.00	$2.58x10^{-5}$	252
A5	0.43	$6.27x10^{-9}$	$6.60x10^{-4}$	$4.90x10^{-4}$	$3.27x10^{-5}$	$2.73x10^{-7}$	2.78
B2	136	$2.83x10^{-6}$	0.66	1.01	$4.59x10^{-2}$	$5.10x10^{-4}$	1,892
B4	4,051	$6.90x10^{-4}$	18.6	12.2	1.77	0.07	38,865
B6	19,731	$1.10x10^{-4}$	45.9	44.3	2.19	0.01	239,046
B7	337	$7.48x10^{-5}$	1.43	0.66	0.07	$7.60x10^{-4}$	3,536
C2	0.610	$7.28x10^{-9}$	$1.88x10^{-3}$	$6.50x10^{-4}$	$9.25x10^{-5}$	$8.70x10^{-7}$	8.48
C4	27.8	0.00	0.03	0.01	0.07	0.00	0.00

TRACI Impact Method	GWP	ODP	AP	EP	SFP	FFD
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg N eq	kg O_3 eq	MJ Surplus
A1	496	$1.00x10^{-4}$	2.52	2.99	29.7	319
A2	1.12	$1.82x10^{-8}$	0.01	0.00	0.14	2.21
A3	26.1	$5.42x10^{-7}$	0.05	0.08	0.78	22.2
A1-A3 Total:	**523**	**$1.01x10^{-4}$**	**2.57**	**3.07**	**30.6**	**343**
A4	18.0	$2.94x10^{-7}$	0.07	0.02	1.73	35.7
A5	0.43	$7.25x10^{-9}$	$7.40x10^{-4}$	$9.80x10^{-4}$	0.01	0.37
B2	135	$3.52x10^{-6}$	0.68	0.90	7.12	216
B4	4,012	$7.00x10^{-4}$	33.9	23.8	243	2,721
B6	19,619	$2.50x10^{-4}$	46.5	97.6	529	24,563
B7	333	$7.67x10^{-5}$	1.49	1.29	20.7	256
C2	0.60	0.60	0.60	0.60	0.60	0.60
C4	27.4	0.00	2.32	$1.85x10^{-3}$	1.39	0.00

Table 17. *Additional Resource Use and Waste indicators for Sloan DropSpot™ 110 SS.*

Resource Use	RPR_E	RPR_M	$NRPR_E$	$NRPR_M$	SM	RSF	NRSF	RE	FW
	MJ, LHV	MJ, LHV	MJ, LHV	MJ, LHV	kg	MJ, LHV	MJ, LHV	MJ, LHV	m^3
A1	652	0.00	5,370	0.00	0.00	0.00	0.00	0.00	4.05
A2	0.20	0.00	15.8	0.00	0.00	0.00	0.00	0.00	$2.10x10^{-3}$
A3	50.3	0.00	182	0.00	0.00	0.00	0.00	0.00	0.11
A1-A3 Total:	**702**	**0.00**	**5,567**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.16**
A4	3.38	0.00	255	0.00	0.00	0.00	0.00	0.00	0.04
A5	0.08	0.00	2.87	0.00	0.00	0.00	0.00	0.00	$1.06x10^{-3}$
B2	716	0.00	2,052	0.00	0.00	0.00	0.00	0.00	4.13
B4	4,581	0.00	37,813	0.00	0.00	0.00	0.00	0.00	27.2
B6	40,659	0.00	357,859	0.00	0.00	0.00	0.00	0.00	133
B7	383	0.00	4,004	0.00	0.00	0.00	0.00	0.00	264
C2	0.11	0.00	8.59	0.00	0.00	0.00	0.00	0.00	$1.18x10^{-3}$
C4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste & Output	HWD	NHWD	HLRW/ILLRW	CRU	MR	MER	EE
	kg	kg	kg	kg	kg	kg	MJ, LHV
A1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3	7.76	3.37	0.00	0.00	6.28	0.00	0.00
A1-A3 Total:	**7.76**	**3.37**	**0.00**	**0.00**	**6.28**	**0.00**	**0.00**
A4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A5	0.00	1.00	0.00	0.00	2.09	0.00	0.00
B2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B4	0.00	205	0.00	0.00	0.00	0.00	0.00
B6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B7	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4	0.00	31.6	0.00	0.00	0.00	0.00	0.00

Table 18. *Impact indicator results for Sloan DropSpot™ 110 BLK.*

CML Impact Method	GWP	ODP	AP	EP	POCP	ADPE	ADPF
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg PO_4^{3-} eq	kg C_2H_4 eq	kg Sb eq	MJ
A1	740	$1.00x10^{-4}$	3.23	2.03	0.28	0.01	7349
A2	1.17	$1.39x10^{-8}$	0.01	$1.37x10^{-3}$	$2.10x10^{-4}$	$1.59x10^{-6}$	16.1
A3	31.3	$5.31x10^{-7}$	0.06	0.08	$4.13x10^{-3}$	$3.15x10^{-5}$	229
A1-A3 Total:	**772**	**$1.01x10^{-4}$**	**3.30**	**2.11**	**0.28**	**$8.5x10^{-3}$**	**7594**
A4	20.4	$2.43x10^{-7}$	0.06	0.02	$3.09x10^{-3}$	$2.90x10^{-5}$	283
A5	1.00	$1.44x10^{-8}$	$1.60x10^{-3}$	$1.12x10^{-3}$	$7.94x10^{-5}$	$6.53x10^{-7}$	6.77
B2	136	$2.83x10^{-6}$	0.66	1.01	$4.59x10^{-2}$	$5.10x10^{-4}$	1892
B4	5,652	$7.00x10^{-4}$	23.5	15.9	2.40	0.07	54,654
B6	19,731	$1.10x10^{-4}$	45.9	44.3	2.19	0.01	239,046
B7	337	$7.48x10^{-5}$	1.43	0.663	$7.08x10^{-2}$	$7.60x10^{-4}$	3,536
C2	0.60	$7.16x10^{-9}$	$1.85x10^{-3}$	$6.40x10^{-4}$	$9.10x10^{-5}$	$8.56x10^{-7}$	8.35
C4	27.4	0.00	0.03	0.01	0.07	0.00	0.00

TRACI Impact Method	GWP	ODP	AP	EP	SFP	FFD
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg N eq	kg O_3 eq	MJ Surplus
A1	732	$1.10x10^{-4}$	3.29	4.02	42.0	440
A2	1.16	$1.89x10^{-8}$	0.01	$1.30x10^{-3}$	0.14	2.28
A3	31.0	$7.36x10^{-7}$	0.07	0.12	1.14	28.9
A1-A3 Total:	**764**	**$1.11x10^{-4}$**	**3.37**	**4.15**	**43.3**	**472**
A4	20.2	$3.30x10^{-7}$	0.08	0.02	1.95	40.1
A5	0.99	$1.68x10^{-8}$	$1.80x10^{-3}$	$2.21x10^{-3}$	0.04	0.91
B2	135	$3.52x10^{-6}$	0.68	0.90	7.12	216
B4	5,607	$7.20x10^{-4}$	39.1	30.9	328	3,607
B6	19,619	$2.50x10^{-4}$	46.5	97.6	529	24,563
B7	333	$7.67x10^{-5}$	1.49	1.29	20.7	256
C2	0.59	$9.74x10^{-9}$	$2.23x10^{-3}$	$6.60x10^{-4}$	0.06	1.18
C4	26.9	0.00	2.28	$1.82x10^{-3}$	1.36	0.00

Table 19. *Additional Resource Use and Waste indicators for Sloan DropSpot™ 110 BLK.*

Resource Use	RPR_E	RPR_M	$NRPR_E$	$NRPR_M$	SM	RSF	NRSF	RE	FW
	MJ, LHV	MJ, LHV	MJ, LHV	MJ, LHV	kg	MJ, LHV	MJ, LHV	MJ, LHV	m^3
A1	793	0.00	7802	0.00	0.00	0.00	0.00	0.00	5.72
A2	0.21	0.00	16.3	0.00	0.00	0.00	0.00	0.00	$2.18x10^{-3}$
A3	138	0.00	242	0.00	0.00	0.00	0.00	0.00	0.16
A1-A3 Total:	**931**	**0.00**	**8060**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.88**
A4	3.80	0.00	287	0.00	0.00	0.00	0.00	0.00	0.04
A5	0.19	0.00	6.97	0.00	0.00	0.00	0.00	0.00	$2.58x10^{-3}$
B2	716	0.00	2,053	0.00	0.00	0.00	0.00	0.00	4.13
B4	6,069	0.00	54,255	0.00	0.00	0.00	0.00	0.00	38.4
B6	40,659	0.00	357,859	0.00	0.00	0.00	0.00	0.00	0.00
B7	383	0.00	4,004	0.00	0.00	0.00	0.00	0.00	133
C2	0.11	0.00	8.46	0.00	0.00	0.00	0.00	0.00	$1.16x10^{-3}$
C4	0.00	0.00	0.03	0.01	0.07	0.00	0.00	27.8	0.00

Waste & Output	HWD	NHWD	HLRW/ILLRW	CRU	MR	MER	EE
	kg	kg	kg	kg	kg	kg	MJ, LHV
A1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3	7.75	3.37	0.00	0.00	6.20	0.00	0.00
A1-A3 Total:	**7.75**	**3.37**	**0.00**	**0.00**	**6.20**	**0.00**	**0.00**
A4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A5	0.00	3.29	0.00	0.00	4.64	0.00	0.00
B2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B4	0.00	202	0.00	0.00	0.00	0.00	0.00
B6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B7	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4	0.00	31.5	0.00	0.00	0.00	0.00	0.00

Table 20. *Impact indicator results for Sloan DropSpot™ 120 SS.*

CML Impact Method	GWP	ODP	AP	EP	POCP	ADPE	ADPF
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg PO_4^{3-} eq	kg C_2H_4 eq	kg Sb eq	MJ
A1	748	$1.00x10^{-4}$	3.36	2.03	0.26	0.01	7,439
A2	1.56	$1.85x10^{-8}$	0.01	$1.79x10^{-3}$	$2.70x10^{-4}$	$2.14x10^{-6}$	21.5
A3	8.7	$1.81x10^{-7}$	0.03	0.05	$2.43x10^{-3}$	$1.94x10^{-5}$	101
A1-A3 Total:	**759**	**$1.00x10^{-4}$**	**3.40**	**2.08**	**0.27**	**0.01**	**7,562**
A4	26.0	$3.11x10^{-7}$	0.08	0.03	$3.95x10^{-3}$	$3.71x10^{-5}$	362
A5	0.80	$1.16x10^{-8}$	$1.31x10^{-3}$	$9.10x10^{-4}$	$6.53x10^{-5}$	$5.34x10^{-7}$	5.57
B2	136	$2.83x10^{-6}$	0.66	1.01	$4.59x10^{-2}$	$5.10x10^{-4}$	1892
B4	5,868	$7.00x10^{-4}$	24.6	16.1	2.50	0.08	56,109
B6	19,731	$1.10x10^{-4}$	45.9	44.3	2.19	0.01	239,046
B7	337	$7.48x10^{-5}$	1.43	0.663	$7.08x10^{-2}$	$7.60x10^{-4}$	3536
C2	0.84	$9.97x10^{-9}$	$2.57x10^{-3}$	$8.90x10^{-4}$	$1.30x10^{-4}$	$1.19x10^{-6}$	11.6
C4	38.1	0.00	0.04	0.01	0.10	0.00	0.00

TRACI Impact Method	GWP	ODP	AP	EP	SFP	FFD
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg N eq	kg O_3 eq	MJ Surplus
A1	741	$1.10x10^{-4}$	3.42	4.04	42.9	461
A2	1.54	$2.52x10^{-8}$	0.01	$1.73x10^{-3}$	0.18	3.05
A3	8.52	$3.14x10^{-7}$	0.04	0.06	0.60	12.2
A1-A3 Total:	**751**	**$1.10x10^{-4}$**	**3.46**	**4.10**	**43.7**	**476**
A4	25.8	$4.23x10^{-7}$	0.10	0.03	2.49	51.3
A5	0.80	$1.36x10^{-8}$	$1.49x10^{-3}$	$1.77x10^{-3}$	0.03	0.75
B2	135	$3.52x10^{-6}$	0.68	0.90	7.12	216
B4	5,810	$7.20x10^{-4}$	45.7	31.1	341	3,842
B6	19,619	$2.50x10^{-4}$	46.5	97.6	529	24,563
B7	333	$7.67x10^{-5}$	1.49	1.29	20.7	256
C2	0.83	$1.36x10^{-8}$	$3.11x10^{-3}$	$9.20x10^{-4}$	0.08	1.65
C4	37.5	0.00	3.18	$2.53x10^{-3}$	1.90	0.00

Table 21. *Additional Resource Use and Waste indicators for Sloan DropSpot™ 120 SS.*

Resource Use	RPR_E	RPR_M	$NRPR_E$	$NRPR_M$	SM	RSF	NRSF	RE	FW
	MJ, LHV	MJ, LHV	MJ, LHV	MJ, LHV	kg	MJ, LHV	MJ, LHV	MJ, LHV	m^3
A1	948	0.00	7,936	0.00	0.00	0.00	0.00	0.00	5.86
A2	0.28	0.00	21.8	0.00	0.00	0.00	0.00	0.00	$2.93x10^{-3}$
A3	116	0.00	109	0.00	0.00	0.00	0.00	0.00	0.09
A1-A3 Total:	**1,064**	**0.00**	**8,066**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.95**
A4	4.86	0.00	367	0.00	0.00	0.00	0.00	0.00	0.05
A5	0.15	0.00	5.73	0.00	0.00	0.00	0.00	0.00	$2.13x10^{-3}$
B2	716	0.00	2053	0.00	0.00	0.00	0.00	0.00	4.13
B4	6,977	0.00	55,838	0.00	0.00	0.00	0.00	0.00	39.5
B6	40,659	0.00	357,859	0.00	0.00	0.00	0.00	0.00	133
B7	383	0.00	4,004	0.00	0.00	0.00	0.00	0.00	264
C2	0.16	0.00	11.8	0.00	0.00	0.00	0.00	0.00	$1.61x10^{-3}$
C4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste & Output	HWD	NHWD	HLRW/ILLRW	CRU	MR	MER	EE
	kg	kg	kg	kg	kg	kg	MJ, LHV
A1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3	10.6	4.63	0.00	0.00	8.60	0.00	0.00
A1-A3 Total:	**10.6**	**4.63**	**0.00**	**0.00**	**8.60**	**0.00**	**0.00**
A4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A5	0.00	2.97	0.00	0.00	3.68	0.00	0.00
B2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B4	0.00	281	0.00	0.00	0.00	0.00	0.00
B6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B7	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4	0.00	43.3	0.00	0.00	0.00	0.00	0.00

Table 22. *Impact indicator results for Sloan Sloan DropSpot™ 120 BLK.*

CML Impact Method	GWP	ODP	AP	EP	POCP	ADPE	ADPF
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg PO_4^{3-} eq	kg C_2H_4 eq	kg Sb eq	MJ
A1	1,026	$1.00x10^{-4}$	4.21	2.65	0.38	0.01	10,167
A2	1.55	$1.85x10^{-8}$	0.01	$1.78x10^{-3}$	$2.70x10^{-4}$	$2.13x10^{-6}$	21.4
A3	43.0	$7.31x10^{-7}$	0.08	0.10	0.01	$4.03x10^{-5}$	310
A1-A3 Total:	**1,071**	**$1.01x10^{-4}$**	**4.29**	**2.75**	**0.38**	**0.01**	**10,499**
A4	28.0	$3.35x10^{-7}$	0.09	0.03	$4.25x10^{-3}$	$4.00x10^{-5}$	390
A5	1.35	$1.96x10^{-8}$	$2.13x10^{-3}$	$1.52x10^{-3}$	$1.10x10^{-4}$	$8.72x10^{-7}$	8.98
B2	136	$2.83x10^{-6}$	0.657	1.01	$4.59x10^{-2}$	$5.10x10^{-4}$	1892
B4	7,398	$6.90x10^{-4}$	28.7	18.1	3.19	0.06	70,811
B6	19,731	$1.10x10^{-4}$	45.9	44.3	2.19	0.01	239,046
B7	337	$7.48x10^{-5}$	1.43	0.663	$7.08x10^{-2}$	$7.60x10^{-4}$	3,536
C2	0.84	$1.00x10^{-8}$	$2.58x10^{-3}$	$9.00x10^{-4}$	$1.30x10^{-4}$	$1.19x10^{-6}$	11.6
C4	38.2	0.00	0.04	0.01	0.10	0.00	0.00

TRACI Impact Method	GWP	ODP	AP	EP	SFP	FFD
	kg CO_2 eq	kg CFC-11 eq	kg SO_2 eq	kg N eq	kg O_3 eq	MJ Surplus
A1	1,016	$1.10x10^{-4}$	4.32	5.25	57.2	604
A2	1.54	$2.51x10^{-8}$	0.01	$1.72x10^{-3}$	0.18	3.04
A3	42.6	$1.01x10^{-6}$	0.09	0.16	1.54	39.3
A1-A3 Total:	**1,016**	**$1.10x10^{-4}$**	**4.32**	**5.25**	**57.2**	**604**
A4	27.8	$4.55x10^{-7}$	0.10	0.03	2.68	55.2
A5	1.35	$2.27x10^{-8}$	$2.39x10^{-3}$	$3.02x10^{-3}$	0.05	1.20
B2	135	$3.52x10^{-6}$	0.68	0.90	7.12	216
B4	7,321	$7.10x10^{-4}$	50.5	35.4	413	4,571
B6	19,619	$2.50x10^{-4}$	46.5	97.6	529	24,563
B7	333	$7.67x10^{-5}$	1.49	1.29	20.7	256
C2	0.83	$1.36x10^{-8}$	$3.12x10^{-3}$	$9.20x10^{-4}$	0.08	1.65
C4	37.6	0.00	3.19	$2.54x10^{-3}$	1.90	0.00

Table 23. *Additional Resource Use and Waste indicators for Sloan DropSpot™ 120 BLK.*

Resource Use	RPR_E	RPR_M	$NRPR_E$	$NRPR_M$	SM	RSF	NRSF	RE	FW
	MJ, LHV	MJ, LHV	MJ, LHV	MJ, LHV	kg	MJ, LHV	MJ, LHV	MJ, LHV	m^3
A1	1,110	0.00	10,776	0.00	0.00	0.00	0.00	0.00	7.82
A2	0.28	0.00	21.7	0.00	0.00	0.00	0.00	0.00	$2.92x10^{-3}$
A3	173	0.00	328	0.00	0.00	0.00	0.00	0.00	0.21
A1-A3 Total:	**1,283**	**0.00**	**11,125**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**8.03**
A4	5.23	0.00	395	0.00	0.00	0.00	0.00	0.00	0.05
A5	0.26	0.00	9.25	0.00	0.00	0.00	0.00	0.00	$3.42x10^{-3}$
B2	716	0.00	2,053	0.00	0.00	0.00	0.00	0.00	4.13
B4	8,371	0.00	74,913	0.00	0.00	0.00	0.00	0.00	52.5
B6	40,659	0.00	357,859	0.00	0.00	0.00	0.00	0.00	133
B7	383	0.00	4,004	0.00	0.00	0.00	0.00	0.00	264
C2	0.16	0.00	11.8	0.00	0.00	0.00	0.00	0.00	$1.62x10^{-3}$
C4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste & Output	HWD	NHWD	HLRW/ILLRW	CRU	MR	MER	EE
	kg	kg	kg	kg	kg	kg	MJ, LHV
A1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A3	10.7	4.64	0.00	0.00	8.62	0.00	0.00
A1-A3 Total:	**10.7**	**4.64**	**0.00**	**0.00**	**8.62**	**0.00**	**0.00**
A4	0.00	0.00	0.00	0.00	0.00	0.00	0.00
A5	0.00	3.87	0.00	0.00	6.40	0.00	0.00
B2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B4	0.00	287	0.00	0.00	0.00	0.00	0.00
B6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B7	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C4	0.00	44.1	0.00	0.00	0.00	0.00	0.00

6. LCA: INTERPRETATION

The interpretation phase conforms to ISO 14044. The interpretation included the use of evaluation and sensitivity checks to steer the iterative process during the assessment, and a final evaluation including completeness, sensitivity, and consistency checks, at the end of the study.

The contributions to total impact indicator results are dominated by the use phase impacts from the energy usage during operation (B7), replacement (B4) module, and water usage (B7) module. When examining the results without the use phase impacts, the results are impacted by the raw material module (A1) and manufacturing impacts (A3). Note results shown in Figure 2 have been shown without Modules B4, B6, and B7 due to the large impact and variability in these modules.

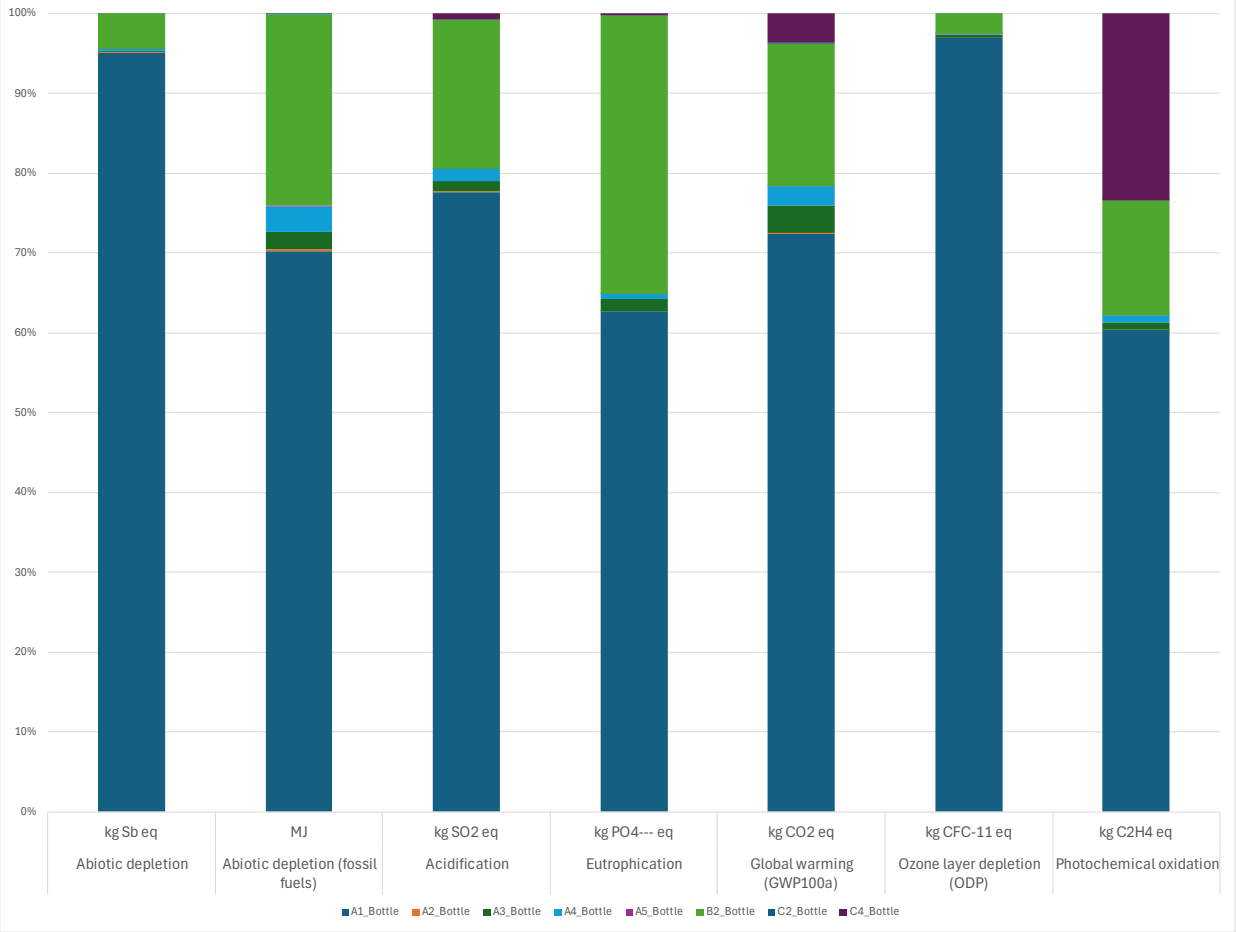

Figure 2. *Contribution analysis for the Sloan DropSpot™ 110 SS Bottle Fillers showing CML impact method results (without Modules B4, B6, and B7).*

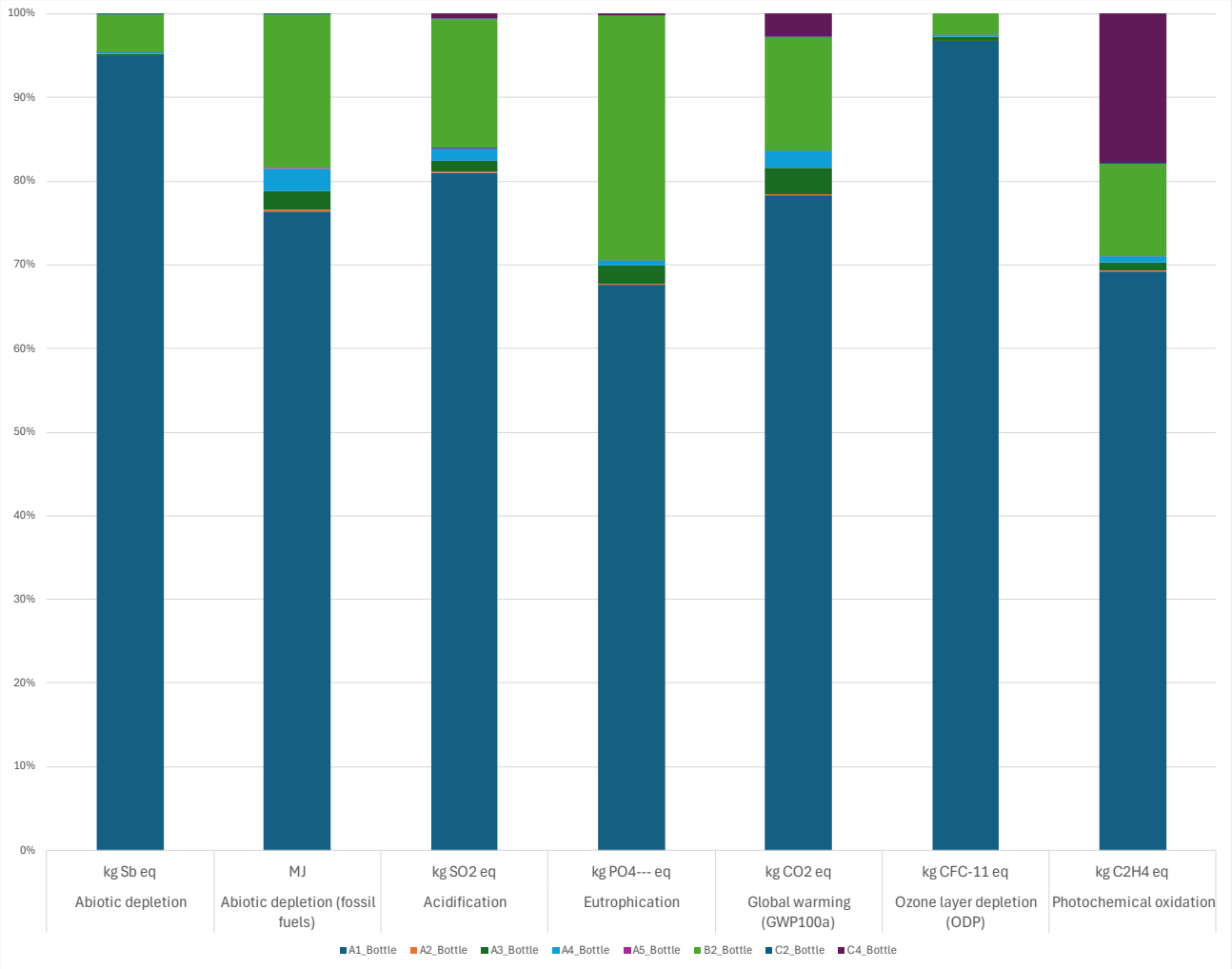

Figure 3. *Contribution analysis for the Sloan DropSpot™ 110 BLK Bottle Fillers showing CML impact method results (without Modules B4, B6, and B7).*

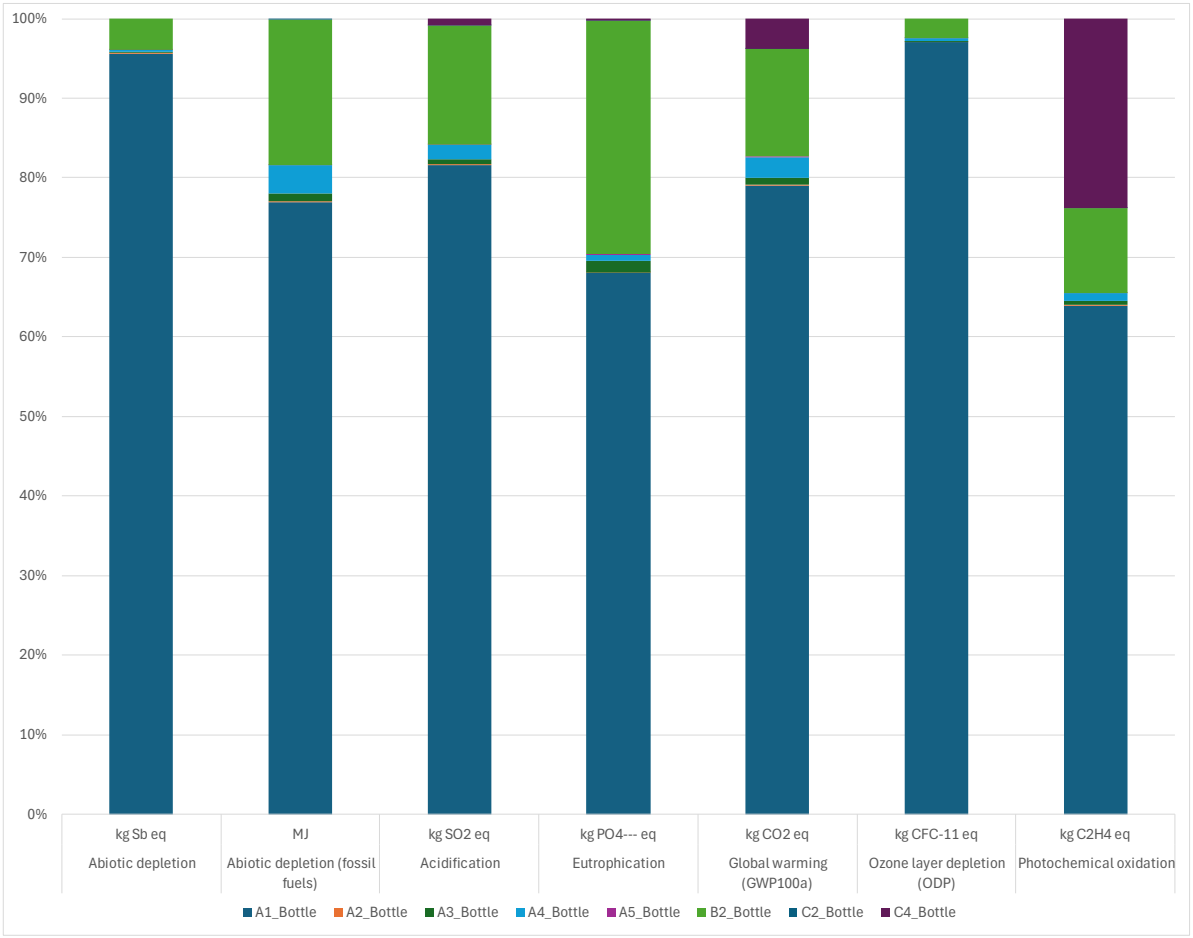

Figure 4. *Contribution analysis for the Sloan DropSpot™ 120 SS Bottle Fillers showing CML impact method results (without Modules B4, B6, and B7).*

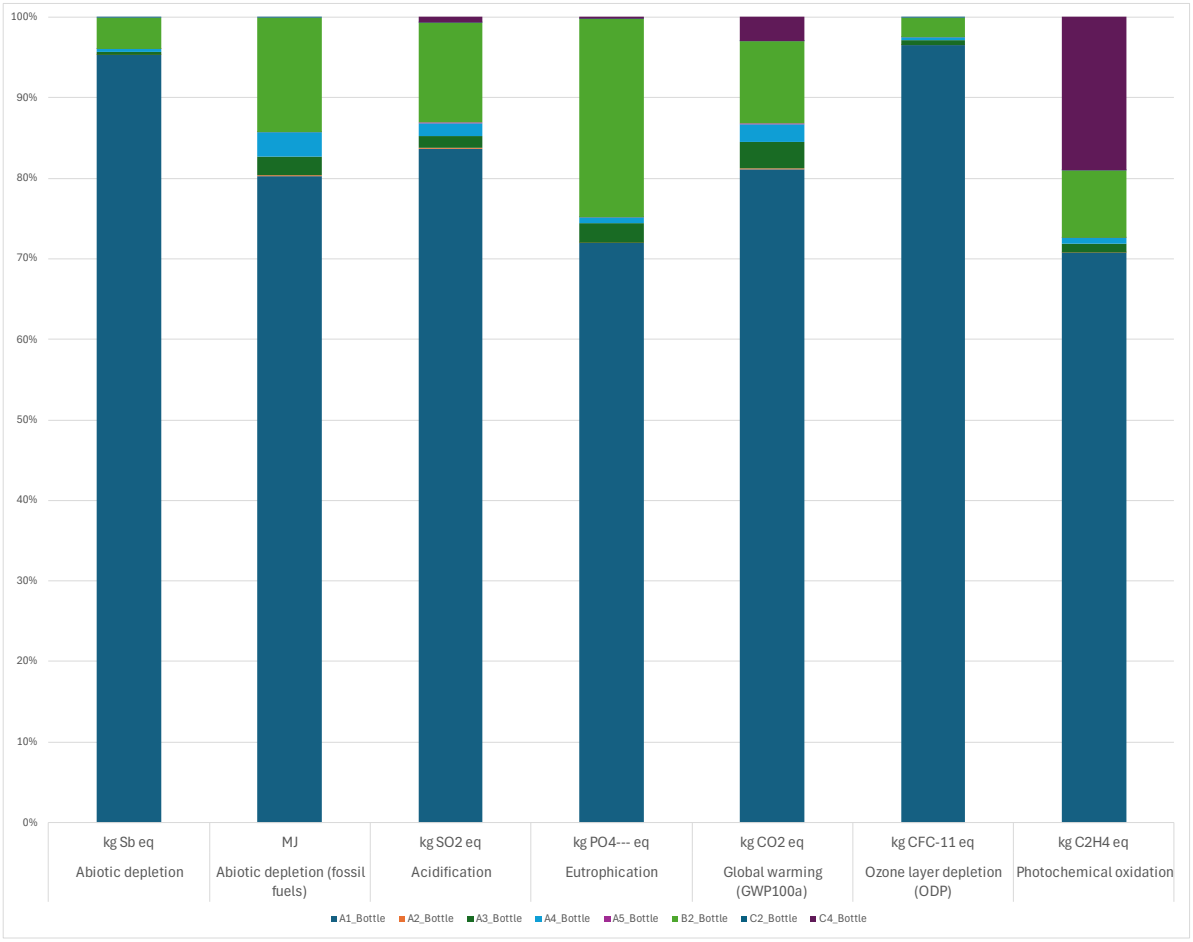

Figure 5. *Contribution analysis for the Sloan DropSpot™ 120 BLK Bottle Fillers showing CML impact method results (without Modules B4, B6, and B7).*

7. ADDITIONAL ENVIRONMENTAL INFORMATION

Sloan is a proud member of the United States Green Building Council (USGBC) and through the use of Leadership in Energy and Environmental Design (LEED) Green Building Rating System, Sloan recognizes and validates the importance of best-on-class building strategies and practices of high performing green buildings. Sloan's Bottle Fillers within this EPD can be used to help achieve USGBC LEED v4 points and complying with building codes.

No environmental or health impacts are expected due to extraordinary effects including fire and/or water damage and product destruction.

For more information on Sloan's certifications and environmental initiatives please visit the website at www.sloan.com.

8. REFERENCES

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