MAGLIN™
Site Furniture

Environmental Product Declaration

Environmental Product Declaration for 1500 Waste Receptacle Products produced by Maglin Site Furniture at their Waste Receptacle facility in Woodstock, ON, Canada.

ADMINISTRATIVE INFORMATION

International Certified Environmental Product Declaration

Declared Product:	This Environmental Product Declaration (EPD) covers waste receptacle products produced by Maglin Site Furniture. Declared unit: 1 waste receptacle
Declaration Owner:	Maglin Site Furniture 3-468 Innovation Way Woodstock, ON https://www.maglin.com/
Program Operator:	Labeling Sustainability 11670 W Sunset Blvd Los Angeles, CA 90049 www.labelingsustainability.com
Product Category Rule:	ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services and Sub Product Category Rule for Site Furnishings, CSI MasterFormat, Section 32 33 00 PCR Program Operator: Labeling Sustainability PCR review was conducted by: Geoffrey Guest, Ph.D.
Independent LCA Reviewer and EPD Verifier:	This declaration was independently verified in accordance with ISO 14025:2006. Independent verification of the declaration, according to ISO 14025:2006. Internal ☐ ; External ☐ X Third Party Verifier Geoffrey Guest, Certified 3rd Party Verifier under the Labeling Sustainability Program (www.labelingsustainability.com), CSA Group (www.csaregistries.ca)
Date of Issue:	24 March 2022
Period of Validity:	5 years; valid until 24 March 2027
EPD Number:	87c48f8a-be64-4c04- 9bfc-22a496208a30-7

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COMPANY DESCRIPTION

In 1983 Ian McAskile was inside crafting home furnishings, and the inspiration struck to take his craft outdoors. He knew from extensive experience that the indoors shows you walls. However, the outdoors serves the wonders – and those who want to make their exterior environment stunning and sustainable deserve to work with people with the same passion. Enter Maglin (named after Ian's daughters, Maggie and Lindsay), a site furniture company made to meet the need for contemporary outdoor amenities that are aesthetically pleasing while environmentally friendly. From benches, bollards, bike racks, and receptacles to panels, planters, tables, chairs, custom projects, and more — Maglin Site Furniture strategically configures and thoughtfully customizes adaptable solutions that will enhance any area.

Maglin continues to grow both as a company — offering new and expanding product lines in response to the needs of its clients, but also as a corporate citizen — building social consciousness into its operation; from supporting a variety of charitable causes, facilitating staff dialogue about diversity issues, to reevaluating our manufacturing process to strive for increasingly environmentally kind products.

STUDY GOAL

The intended application of this life cycle assessment (LCA) is to comply with the procedures for creating a Type III environmental product declaration (EPD) and publish the EPD for public review on the website, wwwlabelingsustainability.com. This level of study is in accordance with EPD Product Category Rule (PCR) for Waste Receptacle published by; International Standards Organization (ISO) 14025:2006 Environmental labels and declarations, Type III environmental declarations-Principles and procedures; ISO 14044:2006 Environmental management, Life cycle assessment- Requirements and guidelines; and ISO 14040:2006 Environmental management, Life cycle assessment-Principles and framework. The performance of this study and its subsequent publishing is in alignment with the business-to-business (B2B) communication requirements for the environmental assessment of building products. The study does not intend to support comparative assertions and is intended to be disclosed to the public.

This project report was commissioned to differentiate Maglin Site Furniture from their competition for the following reasons: generate an advantage for the organization; offer customers information to help them make informed product decisions; improve the environmental performance of Maglin Site Furniture by continuously measuring, controlling and reducing the environmental impacts of their products; help project facilitators working on Leadership in Energy and Environmental Design (LEED) projects achieve their credit goal; and to strengthen Maglin Site Furniture's license to operate in the community. The intended audience for this LCA report is Maglin Site Furniture's employees, their suppliers, project specifiers of their products, architects, and engineers. The EPD report is also available for policy makers, government officials interested in sustainability, academic professors, and LCA professionals. This LCA report does not include product comparisons from other facilities.

DESCRIPTION OF PRODUCT AND SCOPE

Maglin waste receptacles come in various options to meet their customers' project needs. This makes it difficult to capture every possible waste receptacle option that could be manufactured and sold by Maglin for a project. To accomplish this goal, this EPD reports using two different methods:

The average method. This method is detailed in ISO 21930:2017, Section 5.3 Average EPDs for similar products groups.

A representative product is chosen for a product line. When applicable, all variations of the product plus or minus 10% are included in this average value.

The "low" and "high" option by mass weight.

The range method of reporting a complete product line is different from modeling just an average product for that range with a tolerance of plus or minus 10% deviation from the average product modeled. Using the range method allows manufacturers to capture a full product line within that range and understand the impacts of their options and product series add-ons. This method is compliant with the primary PCR for this EPD, ISO 21930: 2017 Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services, and the sub-PCR, Sub Product Category Rule for Site Furnishings, CSI MasterFormat, Section 323300. Per the sub-PCR, the following statements describe the process for determining a product range and including the products. "By performing a realistic range for modeling hundreds of combinations of a piece of furniture also allows for longevity of the EPD by keeping up with the design aesthetic and customizing furniture. For the future options to be included in this EPD, they must appear on the list of features considered when creating the low and high options. The lowest and highest option shall be reported along with an average of the two when reporting the impacts. A complete table with the product's technical attributes, as defined in the Section on the Product Description, must be listed for the base case and worst cases with a complete Bill of Materials (BOM) to .1% by weight. If the impacts from the low, high, and average differ by more than 10%, an explanation must be included as part of the reporting. Similar products that vary less than 10% between models due to finished or mounting options can be included but noted. The table below outlines each product line's high and low options and the list of included models in that range.

Waste Receptacles with differences between the high and low that are greater than 10% by mass are based on the different sizes available or options. Primary materials remain the same between the two variations.

The functional unit considers an entire product unit.

Maglin standard paint colors include the following: Fine Textured (Preferred for all cast aluminum products)-Silver, Evergreen, Black, Gunmetal, Bronze, Slate, Titanium Gloss- Silver, Evergreen, Black, Gunmetal, Bronze, Graphite, Titanium.

The product descriptions in the table below outline the products and options used to calculate each category range. The PCR states the inclusion of product ranges must follow these guidelines:

"The range of products as an acceptable reporting method for this PCR is detailed in the Product Description. This is different from an average EPD, where one"typical" product is modeled and represents all variations within 10% of it. By performing a realistic range for modeling hundreds of combinations of a piece of furniture also allows for longevity of the EPD by keeping up with the design aesthetic and customizing furniture. For the future options to be included in this EPD, they must appear on the list of features considered when creating the low and high options. The lowest and highest option shall be reported along with an average of the two when reporting the impacts."

This EPD shall cover all products within the low/high range. Those products shall share the same nomenclature, such as Product Group-model number, and shall fall within the range weight. Products included in the "average" perimeter shall be within 10% +/- of the listed weight and follow the same nomenclature Product Group-model number.

Table 1: **All Product Ranges, Averages, Description covered by this EPD**

Option	Product Number	Description
TRASH RECEPTACLES (All Styles & Colors)		
Low	MTR-0200-0007	200 Trash Receptacle, 1 strm, steel, standard lid, 20 gal. PE liner
HIgh	MTR-0200-00016	200 Trash Receptacle, 1 strm, steel, side opening, dome lid, standard opening, 32 gal. PE liner
Low	MTR-0250-00004	250 Trash Receptacle, 1 strm, steel, standard lid, 32 gal. PE liner
High	MTR-0250-00010	250 Trash Receptacle, 1 strm, steel, side opening, dome lid, standard opening, 32 gal. galvanized steel liner
Average	MTR-0600-00005	600 Trash Receptacle, steel, metal lid, hinged, standard opening, 32 gal. PE liner
Average	MTR-0650-00011	650 Trash Receptacle, 1 strm, steel, metal lid, standard opening, 32 gal. PE liner
Average_Ipe	MTR-1050-00010	1050 Trash Receptacle, steel frame, ipe wood panels, metal lid, standard opening, 32 gal. PE liner
Average_Ash	MTR-1050-00011	1050 Trash Receptacle, steel frame, TM ash wood panels, metal lid, standard opening, 32 gal. PE liner
Average	MTR-1050-00001	1050 Trash Receptacle, steel frame, HDPE OP panels, metal lid, standard opening, 32 gal. PE liner
Average	MTR-1050-00007	1050 Trash Receptacle, steel frame, HDPE WG panels, metal lid, standard opening, 32 gal. PE liner
Average	MTR-1050-00003	1050 Trash Receptacle, steel frame, HDPC panels, metal lid, standard opening, 32 gal. PE liner
Average_Steel	MTR-1400-00001	1400 Trash Receptacle, aluminum frame, steel sides, stainless steel lid, front opening, 32 gal. PE liner
Average	MTR-1400-00009	1400 Trash Receptacle, aluminum frame, HDPC sides, stainless steel lid, front opening, 32 gal. PE liner

Average	MTR-1400-00005	1400 Trash Receptacle, aluminum frame, HDPE sides, stainless steel lid, front opening, 32 gal. PE liner
Low	MTR-1500-00001	Lexicon Trash Receptacle, 1 strm, steel frame, laser cut and formed steel sides, 32 gal. PE liner
High	MTR-1500-00002	Lexicon Trash Receptacle, 1 strm, steel frame, laser cut and formed steel sides, 32 gal. PE liner, rain shield
Low_Steel	MTR-2900-00008	MUG Trash Receptacle, steel frame and lid, steel slats, 32 gal. PE liner
High_Steel	MTR-2900-00016	MUG Trash Receptacle, steel frame and lid, steel slats, 32 gal. PE liner, rain guard
Low_Ipe	MTR-2900-00001	MUG Trash Receptacle, steel frame and lid, ipe wood slats, 32 gal. PE liner
High_Ipe	MTR-2900-00002	MUG Trash Receptacle, steel frame and lid, ipe wood slats, 32 gal. PE liner, rain guard
Low_Ash	MTR-2900-00005	MUG Trash Receptacle, steel frame and lid, thermal ash wood slats, 32 gal. PE liner
High_Ash	MTR-2900-00013	MUG Trash Receptacle, steel frame and lid, thermal ash wood slats, 32 gal. PE liner, rain guard
RECYCLE RECEPTACLES (All Styles and Colors)		
Low	MRR-0200-00015	200 Recycle Receptacle, 1 strm, steel, bottles-cans lid, 20 gal. PE liner
High	MRR-0200-00007	200 Recycle Receptacle, 3 strm, steel, steel lids, standard opening, paper slot, bottles-cans, 3 x 20 gal. PE liner
Low	MRR-0250-00007	250 Recycle Receptacle, 1 strm, steel, bottles-cans lid, 32 gal. PE liner
High	MRR-0250-00004	250 Recycle Receptacle, 3 strm, steel, steel lids, standard opening, paper slot, bottles-cans, 3 x 20 gal. PE liner
Average	MRR-0600-00001	600 Recycle Receptacle, 1 strm, steel, metal lid, hinged, bottles-cans, 32 gal. PE liner
Low	MRR-1400-00022	1400 Recycle Receptacle, 2 strm, aluminum frame, steel sides, stainless steel lid, front opening, 2 x 23 gal. PE liner
High	MRR-1400-00008	1400 Recycle Receptacle, 3 strm, aluminum frame, steel sides, stainless steel lid, front opening, 3 x 23 gal. PE liner
Low	MRR-1400-00005	1400 Recycle Receptacle, 2 strm, aluminum frame, HDPC sides, stainless steel lid, front opening, 2 x 23 gal. PE liner
High	MRR-1400-00011	1400 Recycle Receptacle, 3 strm, aluminum frame, HDPC sides, stainless steel lid, front opening, 3 x 23 gal. PE liner
Low	MRR-1400-00004	1400 Recycle Receptacle, 2 strm, aluminum frame, HDPE OP sides, stainless steel lid, front opening, 2 x 23 gal. PE liner
High	MRR-1400-00010	1400 Recycle Receptacle, 3 strm, aluminum frame, HDPE OP sides, stainless steel lid, front opening, 3 x 23 gal. PE liner
Low	MRR-1500-00007	Lexicon Recycle Receptacle, 2 strm, steel frame, laser cut and formed steel sides, 2 x 16 gal. PE liner
High	MRR-1500-00016	Lexicon Recycle Receptacle, 3 strm, steel frame, laser cut and formed steel sides, 3 x 16 gal. PE liner, rain shield

Low	MRR-1600-00002	SC Recycle Receptacle, 2 strm, formed steel frame with cast aluminum supports, metal sides, 2 x 16 gal. PE liner
High	MRR-1600-00006	SC Recycle Receptacle, 4 strm, formed steel frame with cast aluminum supports, metal sides, 4 x 16 gal. PE liner

This LCA assumes the impacts from products manufactured in accordance with the standards outlined in this report. This LCA is a cradle-to-grave study.

WASTE RECEPTACLE DESIGN SUMMARY

The following tables provide a list of the waste receptacles products considered in this EPD along with key performance parameters.

Table 2: **Declared products with 1500 considered in this environmental product declaration**

Prod#	Unique name/ ID	Short description	Product type	Unit	Density, dry kg/Unit	bio-carbon content, kg C/FU dry basis	productGroup	Height (cm)	Length (cm)	Width (cm)
26	MTR-1500-00001	Lexicon Trash Receptacle, 1 strm, steel frame, laser cut and formed steel sides, 32 gal. PE liner	Waste receptacle	piece	61.55	0.00	1500	94	63.2	48.3
27	MTR-1500-00002	Lexicon Trash Receptacle, 1 strm, steel frame, laser cut and formed steel sides, 32 gal. PE liner, rain shield	Waste receptacle	piece	73.05	0.00	1500	120.7	63.2	48.3
28	MRR-1500-00007	Lexicon Recycle Receptacle, 2 strm, steel frame, laser cut and formed steel sides, 2 x 16 gal. PE liner	Waste receptacle	piece	63.79	0.00	1500	94	63.2	48.3

29	MRR-1500-00016	Lexicon Recycle Receptacle, 3 strm, steel frame, laser cut and formed steel sides, 3 x 16 gal. PE liner, rain shield	Waste receptacle	piece	96.40	0.00	1500	120.7	88.9	48.3

Waste Receptacle Design Composition

The following figures provide mass breakdown (kg per functional unit) of the material composition of each waste receptacle design considered.

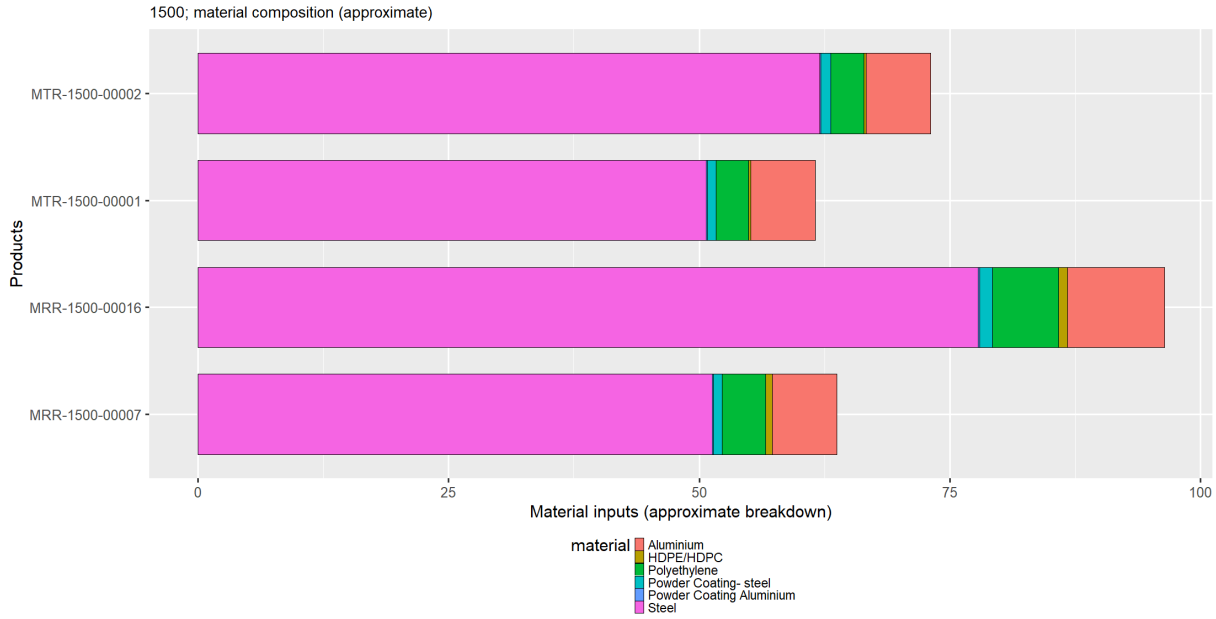

Figure 1: **Material composition - 1500 per 1 waste receptacle**

A1 RAW MATERIAL RECYCLED CONTENT AND MATERIAL LOSSES

The following table provides a list of the raw material inputs (module A1) across all products considered, their recyclability content and assumed material losses.

Table 3: **Module A1 raw material inputs, the recyclability content and assumed material losses (dry basis)**

product.name	mix.category	primary.content	post.industrial.content	post.consumer.content	material.losses
Metal Working, aluminium	metal working, average for aluminium product manufacturing	0%	0%	100%	0%
Metal Working, Steel	metal working, average for steel product manufacturing	100%	0%	0%	0%

Ipe	sawnwood, board, hardwood, dried (u=20%), planed	100%	0%	0%	0%
HDPE	polyethylene, high density, granulate	100%	0%	0%	0%
Recycled HDPE	waste polyethylene, for recycling, sorted	0%	100%	0%	0%
Ash	sawnwood, board, hardwood, dried (u=20%), planed	100%	0%	0%	2%
Pallet	EUR-flat pallet	50%	0%	50%	0%
Plastic Packaging	packaging film, low density polyethylene	100%	0%	0%	1%
Steel Raw Material	steel, low-alloyed	100%	0%	0%	0%
Recycled steel	scrap steel	0%	100%	0%	0%
aluminium raw material	aluminium alloy, AlLi	100%	0%	0%	0%
Recycled aluminium	scrap aluminium	0%	100%	0%	0%
Cardboard/Paper packaging	corrugated board box	100%	0%	0%	1%
Galvanization	zinc coat, pieces	100%	0%	0%	0%
Polyethylene Liner	fleece, polyethylene	100%	0%	0%	0%
Stainless Steel	steel, chromium steel 18/8	100%	0%	0%	0%
Recycled stainless steel	scrap steel	0%	100%	0%	0%

SYSTEM BOUNDARIES

The following figure depicts the cradle-to-grave system boundary considered in this study:

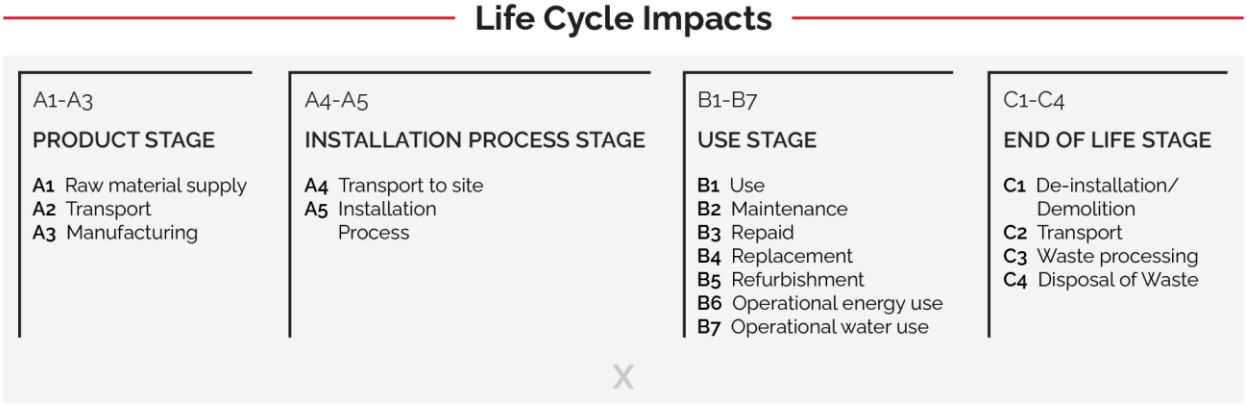

Figure 2: **General life cycle phases for consideration in a construction works system**

This is a Cradle-to-grave life cycle assessment, and the following life cycle stages are included in the study:

- A1: Raw material supply (upstream processes) - Extraction, handling, and processing of the materials used in manufacturing the declared products in this LCA.

- A2: Transportation - Transportation of A1 materials from the supplier to the "gate" of the manufacturing facility (i.e., A3).
- A3: Manufacturing (core processes)- The energy and other utility inputs used to store, move, and manufacture the declared products and to operate the facility.
- A4: Product plant gate-to-site of use logistics
- A5: Product at-site installation requirements
- B: Product use phase requirements and direct emissions (if applicable)
- C: Product end-of-life requirements

As according to the PCR, the following figure illustrates the general activities and input requirements for producing waste receptacle products and is not necessarily exhaustive.

Figure 3: **Process Flow Diagram for processes covered in this study**

In addition, as according to the relevant PCR, the following requirements are excluded from this study:

- Production, manufacture, and construction of A3 building/capital goods and infrastructure;
- Production and manufacture of steel production equipment, steel delivery vehicles, earthmoving equipment, and laboratory equipment;
- Personnel-related activities (travel, furniture, office supplies)
- Energy use related to company management and sales activities.

For this LCA the manufacturing plant, owned and operated by Maglin Site Furniture, is located at their Waste Receptacles facility in Ontario. All operating data is formulated using the actual data from Maglin Site Furniture's plant at the above location, including water, energy consumption and waste generation. All inputs for this system boundary are calculated for the plant.

This life cycle inventory was organized in a spreadsheet and was then input into an RStudio environment where pre-calculated LCIA results for relevant products/activities stemming from the

ecoinvent v3.8 database and a local EPD database in combination with primary data from Maglin Site Furniture were utilized. Explanations of the contribution of each data source to this study are outlined in the section 'Data Sources and Quality'. Further LCI details for each declared product are provided in the sections 'Detailed LCI tables' and 'Transport tables' of the detailed LCA report. A parameter uncertainty analysis was also performed where key statistical results (e.g. min/mean/max etc.) are provided in the detailed LCA report.

No known flows are deliberately excluded from this EPD.

CUT-OFF CRITERIA

ISO 14044:2006 and the focus PCR require the LCA model to contain a minimum of 95% of the total inflows (mass and energy) to the upstream and core modules be included in this study. The cut-off criteria were applied to all other processes unless otherwise noted above. A 1% cut-off is considered for all renewable and non-renewable primary energy consumption and the total mass of inputs within a unit process where the neglected inputs do not exceed 5%.

DATA SOURCES AND DATA QUALITY ASSESSMENT

No recovered on-site energy occurs at this facility.

Table 4: **Reused or recycled components/materials at the A3 facility site**

Component/material for re-use/recycling	Value	Units	Re-used/recycled on-site or off-site
Plastic packaging	1165.5980	kg	Off-site
Cardboard packaging	3160.6443	kg	Off-site
Plastic components	903.6902	kg	Off-site
Steel components	42617.2342	kg	Off-site

The following statements explain how the above facility requirements/generation were derived:

Raw material transport: Maglin does not produce 100% of the materials for their products in-house; they primarily prep and assemble products manufactured by outside vendors. Maglin used engineering drawings to determine the exact parts and weights for each product. The pieces were then further refined by a supplier. When multiple suppliers can manufacture the same part, allocation by purchased percentage during the reference period was used to determine transportation distances and geographical reference data. All raw material inputs are not primary information, and the ecoinvent database was used to model their raw material inputs and manufacturing processes. For example, transportation between suppliers and Maglin was primary information provided by Maglin.

Once Maglin receives the specific part, it is prepped and then transferred to a coating manufacturer. Maglin uses three types of coatings. First, E-Coat is used on steel or aluminum before powder coating. E-Coat is applying a coating with an electrical current onto the material. The process is standard in the automotive industry but can vary for each supplier. Three (3) main stages are typical: Pre-treatment, E-Coat, and Curing. The Pre-treatment stage includes cleaning, pre-treatment, and rinsing. The second stage is E-Coating Process. The final step is Post Rinse and Baking. This wet film process allows the coating to get into interior recesses and cavities (similar to galvanizing), which makes it superior to a

Prime base coat in most instances. The result is a flat black finish and is ready to receive the powder coating.

Aluminum parts receive an alodine treatment before powder coating. The alodine method used on Maglin products is a military specification developed and used by the US department of defense to boost corrosion resistance and provide a good base for the subsequent application of paint. The finish is clear. There is a size limitation with alodine because it is a batch process versus a line system in e-coating, so Maglin only processes smaller aluminum parts. Once properly treated, they are transported by truck back to Maglin, where they will be inspected and transported to the powder coating facilities..

Electricity: Primary electricity consumption was calculated for the Maglin facility from electricity bills. Since 2020 was an uncommon year due to the pandemic, 12 consecutive months were used starting in June 2020 to July 2021. Maglin's utility provider provides monthly usage in kilowatt-hours (kWh) so no conversions were performed. Allotment of utilities was calculated first by determining the product percentage by sales volume. Next, that allotment was then divided by the number of components produced.

Process/space heating: The facility is heated by natural gas. All direct usage, as reported in monthly utility bills, was reported. Since 2020 was an uncommon year due to the pandemic, 12 consecutive months were used, from June 2020 to July 2021. Natural gas is reported in m3 of usage. The conversion factor used for m3 to MJ to represent the burning of the natural gas was 1 m3 of natural gas= 38.3 MJ of energy. Allotment of utilities was calculated first by determining the product percentage by sales volume. Next, that allotment was then divided by the number of components produced.

Fuel required for machinery: On-site machinery for moving materials uses electricity; therefore, no additional fuel usage was reported.

Waste generation: All waste was calculated using primary information from Maglin utility bills. Transportation defaults were used because the driver route and ultimate final destination are unknown. Exact mileage could not be confirmed by the waste hauler.

Recovered energy: No on-site energy is recovered on site.

Recycled/reused material/components: According to the Advancing Sustainable Materials Management: 2018 Fact Sheet (US EPA), only 14% of the total plastic packaging and 81% of paper/cardboard packaging is recycled in the USA, and hence, this value was considered to be the same for Canada. Similarly, 7% Plastic and 24% steel components of the waste receptacles were assumed to be recycled off-site at the end of their service life. However, it is assumed that 98% of steel sent to the incinerator is collected from the bottom ash and recycled (Rainer Bunge 2016).

Module A1 material losses: Default material losses were used.

Direct A3 emissions accounting: Direct emissions for on-site natural gas heating was based on a representative ecoinvent process.

A4 Product transport requirements: Maglin reported the average customer distance based on direct calculations of distance and amount of waste receptacles purchased from purchased orders. For example, the distance of 1,058 km is a representative distance a product is trucked to a customer.

A5 product installation: Maglin provides its clients with installation documents that detail the various methods which could be adopted to install their products. For waste receptacle it has been assumed that all products were installed using 3/8" Anchor bolts which were accounted for as a raw material input. Since waste receptacles are installed manually, no additional process energy or material requirements were assumed for the installation phase.

B product use phase: No use phase material or energy inputs for waste receptacles were assumed in this study.

C product end-of-life: To determine end-of-life in this study, it is assumed that 60% of the steel components of the waste receptacles will be sent to a landfill at the end of its service life and about 13% is incinerated. However, 98% of the steel components sent to the incinerator are collected from the bottom ash and then recycled. This assumption has been made based on the Advancing Sustainable Materials Management: 2018 Fact Sheet (US EPA). Similar end-of-life disposal values for wood and plastics were also derived from the Advancing Sustainable Materials Management: 2018 Fact Sheet (US EPA). Maglin has been in business for 40 years; therefore, they do not have direct knowledge of what their customers would do at the end of the estimated service life of 50 years.

The following tables depict a list of assumed life cycle inventory utilized in the LCA modeling to generate the impact results across the life cycle modules in scope. An assessment of the quality of each LCI activities utilized from various sources is also provided.

Table 5: **LCI inputs assumed for module A1 (i.e., raw material supply) Data Quality Assessment Key Poor=0, Fair=1, Good=2, Very Good =3.**

Input	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness
Galvanization	market for zinc coat, pieces/zinc coat, pieces/GLO/m2	ecoinvent v3.6	No Additional	v3.6 in 2019	2	3	2	3	3
Pallet	market for EUR-flat pallet/EUR-flat pallet/GLO/unit	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	1	3	1	3	3
Stainless Steel	market for steel, chromium steel 18/8/steel, chromium steel 18/8/GLO/kg	ecoinvent v3.6	Ontario	v3.6 in 2019	2	3	2	3	3
HDPE	market for polyethylene, high density,	ecoinvent v3.6	Wisconsin	v3.6 in 2019	2	3	2	3	3

	granulate/polyethylene, high density, granulate/GLO/kg								
Polyethylene Liner	market for fleece, polyethylene/fleece, polyethylene/GLO/kg	ecoinvent v3.6	Nebraska	v3.6 in 2019					
Ipe	market for sawnwood, board, hardwood, dried (u=20%), planed/sawnwood, board, hardwood, dried (u=20%), planed/GLO/m3	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	2	3	3
Metal Working, aluminium	metal working, average for aluminium product manufacturing/metal working, average for aluminium product manufacturing/RoW/kg	ecoinvent v3.6	Ontario	v3.6 in 2019	2	3	2	3	3
aluminium raw material	market for aluminium alloy, AlLi/aluminium alloy, AlLi/GLO/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	2	3	2	3	3
Cardboard /Paper packaging	market for corrugated board box/corrugated board box/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
Plastic Packaging	market for packaging film, low density polyethylene/packaging film, low density polyethylene/GLO/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
Steel Raw Material	market for steel, low-alloyed/steel, low-alloyed/GLO/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	2	3	2	3	3
Metal Working, Steel	metal working, average for steel product manufacturing/metal working, average for steel product manufacturing/RoW/kg	ecoinvent v3.6	Ontario	v3.6 in 2019	2	3	2	3	3
Recycled HDPE	market for waste polyethylene, for recycling, sorted/waste polyethylene, for recycling, sorted/RoW/kg	ecoinvent v3.6	Wisconsin	v3.6 in 2019	2	3	2	3	3
Recycled Steel	treatment of scrap steel, municipal incineration/scrap steel/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	2	A3	2	A3	A3

Table 6: **LCI inputs assumed for module A2 (i.e., transport of A1 inputs) Data Quality Assessment Key Poor=0, Fair=1, Good=2, Very Good =3.**

	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness
aluminium raw material-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Ash- freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Bulk Waste-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Cardboard/ Paper packaging-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
HDPE-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Ipe- freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Metal Working, aluminium-freight transport via Truck	market for transport, freight, lorry >32 metric ton, EURO6/transport, freight, lorry >32 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3

Metal Working, Steel-freight transport via Truck	market for transport, freight, lorry >32 metric ton, EURO6/transport, freight, lorry >32 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Plastic Packaging-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Polyethylene Liner-freight transport via Truck	market for transport, freight, lorry 3.5-7.5 metric ton, EURO6/transport, freight, lorry 3.5-7.5 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Recycled aluminium-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Recycled HDPE-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Recycled stainless steel-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Recycled steel-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Stainless Steel-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3
Steel Raw Material-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16	ecoinvent v3.6	RoW	v3.6 in 2019	2	3	1	3	3

	metric ton, EURO6/RoW/tkm								

Table 7: **LCI inputs assumed for module A3. Data Quality Assessment Key Poor=0, Fair=1, Good=2, Very Good =3.**

Input	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness
Bulk Waste	process-specific burdens, inert material landfill/process-specific burdens, inert material landfill/RoW/kg	ecoinvent v3.6	Ontario	v3.6 in 2019	2	3	2	3	3
Electricity	market for electricity, medium voltage/electricity, medium voltage/CA-ON/kWh	ecoinvent v3.6	Ontario	v3.6 in 2019	2	3	2	3	3
Natural Gas	heat production, natural gas, at boiler modulating >100kW/heat, district or industrial, natural gas/CA-QC/MJ	ecoinvent v3.6	Ontario	v3.6 in 2019	2	3	2	3	3
Powder Coating, aluminum	powder coating, aluminium sheet/powder coat, aluminium sheet/RoW/m2	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	2	3	2	3	3
Powder Coating, steel	powder coating, steel/powder coat, steel/RoW/m2	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	2	3	2	3	3

Table 8: **LCI inputs assumed across modules A4 to C4 (i.e., from plant gate-to-grave if applicable) Data Quality Assessment Key Poor=0, Fair=1, Good=2, Very Good =3.**

Input	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness

C3. Cardboard packaging waste	treatment of waste paperboard, municipal incineration/waste paperboard/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Cardboard packaging waste-freight transport via Truck	market for transport, freight, light commercial vehicle/transport, freight, light commercial vehicle/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
A5. Fasteners	steel production, converter, low-alloyed/steel, low-alloyed/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
A5. Fasteners-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Incinerated Waste aluminium receptacles	treatment of scrap aluminium, municipal incineration/scrap aluminium/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	
C2. Incinerated Waste aluminium receptacles-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Incinerated Waste steel receptacles	treatment of scrap steel, municipal incineration/scrap steel/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Incinerated Waste steel receptacles-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Landfill Waste aluminium receptacles	treatment of waste aluminium, sanitary landfill/waste aluminium/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Landfill Waste aluminium receptacles-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Landfill Waste steel receptacles	treatment of scrap steel, inert material	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3

	landfill/scrap steel/RoW/kg								
C2. Landfill Waste steel receptacles-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Plastic Packaging and Polyethylene waste	treatment of waste plastic, mixture, sanitary landfill/waste plastic, mixture/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Plastic Packaging and Polyethylene waste-freight transport via Truck	market for transport, freight, light commercial vehicle/transport, freight, light commercial vehicle/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
A4. Truck Transport	Product-to-site transport requirements	See A4 transport requirements	Ontario	2020-06-01 to 2021-05-31	NA	NA	NA	NA	NA
A4. Truck Transport-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Waste HDPE to incinerator	treatment of waste plastic, mixture, municipal incineration/waste plastic, mixture/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Waste HDPE to incinerator-freight transport via Truck	market for transport, freight, light commercial vehicle/transport, freight, light commercial vehicle/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Waste HDPE to landfill	treatment of waste plastic, mixture, municipal incineration/waste plastic, mixture/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Waste HDPE to landfill-freight transport via Truck	market for transport, freight, light commercial vehicle/transport, freight, light commercial vehicle/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3

C3. Waste Polyethylene Liner	treatment of waste polyethylene, municipal incineration/waste polyethylene/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Waste Polyethylene Liner-freight transport via Truck	market for transport, freight, light commercial vehicle/transport, freight, light commercial vehicle/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Waste wood to Incinerator	treatment of waste wood, untreated, municipal incineration/waste wood, untreated/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Waste wood to incinerator-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3
C3. Waste wood to landfill	treatment of waste wood, untreated, sanitary landfill/waste wood, untreated/RoW/kg	ecoinvent v3.6	Multiple Regions	v3.6 in 2019	1	3	1	3	3
C2. Waste wood to landfill-freight transport via Truck	market for transport, freight, lorry 7.5-16 metric ton, EURO6/transport, freight, lorry 7.5-16 metric ton, EURO6/RoW/tkm	ecoinvent v3.6	see corrsp. product input above	v3.6 in 2019	2	3	1	3	3

DATA QUALITY ASSESSMENT

Data quality/variability requirements, as specified in the PCR, are applied. This section describes the achieved data quality relative to the ISO 14044:2006 requirements. Data quality is judged based on its precision (measured, calculated, or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied within a study serving as a data source), and representativeness (geographical, temporal, and technological).

Precision: Through measurement and calculation, the manufacturers collected and provided primary data on their annual production. For accuracy, the LCA practitioner and 3rd Party Verifier validated the plant gate-to-gate data.

Completeness: All relevant specific processes, including inputs (raw materials, energy and ancillary materials) and outputs (emissions and production volume) were considered and modeled to represent the specified and declared products. The majority of relevant background materials and processes were taken from ecoinvent v3.8 LCI datasets where relatively recent region-specific

electricity inputs were utilized. The most relevant EPDs requiring key A1 inputs were also utilized where readily available.

Consistency: To ensure consistency, the same modeling structure across the respective product systems was utilized for all inputs, which consisted of raw material inputs and ancillary material, energy flows, water resource inputs, product and co-products outputs, returned and recovered Waste receptacle materials, emissions to air, water and soil, and waste recycling and treatment. The same background LCI datasets from the ecoinvent v3.8 database were used across all product systems. Crosschecks concerning the plausibility of mass and energy flows were continuously conducted. The LCA team conducted mass and energy balances at the plant and selected process level to maintain a high level of consistency.

Reproducibility: Internal reproducibility is possible since the data and the models are stored and available in a machine readable project file for all foreground and background processes, and in Labeling Sustainability's proprietary Waste Receptacle LCA calculator* for all production facility and product-specific calculations. A considerable level of transparency is provided throughout the detailed LCA report as the specifications and material quantity make-up for the declared products are presented and key primary and secondary LCI data sources are summarized. The provision of more detailed publicly accessible data to allow full external reproducibility was not possible due to reasons of confidentiality.

*Labeling Sustainability has developed a proprietary tool that allows the calculation of PCR-compliant LCA results for Waste Receptacle product designs. The tool auto-calculates results by scaling base-unit technosphere inputs (i.e. 1 kg sand, 1 kWh electricity, etc.) to replicate the reference flow conversions that take place in any typical LCA software like openLCA or SimaPro. The tool was tested against several LCAs performed in openLCA and the tool generated identical results to those realized in openLCA across every impact category and inventory metric (where comparisons could be readily made)..

Representativeness: The representativeness of the data is summarized as follows.

- Time-related coverage of the manufacturing processes' primary collected data from 2020-06-01 to 2021-05-31.
- Upstream (background) LCI data was either the PCR specified default (if applicable) or more appropriate LCI datasets found in the country-adjusted ecoinvent v3.8 database.
- Geographical coverage for inputs required by the A3 facility(ies) represents its region of focus; other upstream and background processes are based on US, North American, or global average data and adjusted to regional electricity mixes when relevant.
- Technological coverage is typical or average and specific to the participating facilities for all primary data.

ENVIRONMENTAL INDICATORS AND INVENTORY METRICS

Per the PCR, this EPD supports the life cycle impact assessment and inventory metrics listed in the tables below. As specified in the PCR, the most recent US EPA Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI), impact categories were utilized to provide a North American context for the mandatory category indicators to be included in the EPD. Additionally, the PCR requires a set of inventory metrics to be reported with the LCIA indicators (see tables below).

Table 9: **Life cycle impact categories and life cycle inventory metrics**

ID	LCIA.indicators	Abbreviations	Units
1	Environmental impact: acidification	AP	moles of H+-Eq
2	Environmental impact: eutrophication	EP	kg N
3	Environmental impact: global warming	GWP	kg CO2-Eq
4	Environmental impact: ozone depletion	ODP	kg CFC-11-Eq
5	Environmental impact: photochemical oxidation	PCOP	kg NOx-Eq
6	Material resources: metals/minerals: abiotic depletion potential (ADP): elements (ultimate reserves)	ADPe	kg Sb-Eq
7	Energy resources: non-renewable: abiotic depletion potential (ADP): fossil fuels	ADPf	MJ, net calorific value
Inventory metrics			
8	Total primary energy	TPE	MJ-Eq
9	Renewable energy	RE	MJ-Eq
10	Non-renewable energy	NRE	MJ-Eq
11	Non-Renewable Resources	NRR	kg
12	Renewable Resources	RR	m3
13	Water depletion: WDP	WDP	m3
14	Land filling: bulk waste	LFW	kg waste
15	Land filling: hazardous waste	LFHW	kg waste

It should be noted that emerging LCA impact categories and inventory items are still under development and can have high levels of uncertainty that preclude international acceptance pending further development. Use caution when interpreting data in any of the following categories.

- Renewable primary energy resources as energy (fuel);
- Renewable primary resources as material;
- Non-renewable primary resources as energy (fuel);
- Non-renewable primary resources as material;
- Secondary Materials;
- Renewable secondary fuels;
- Non-renewable secondary fuels;
- Recovered energy;
- Abiotic depletion potential for non-fossil mineral resources.
- Land use related impacts, for example on biodiversity and/or soil fertility;
- Toxicological aspects;
- Emissions from land use change [GWP 100 (land-use change)];
- Hazardous waste disposed;
- Non-hazardous waste disposed;
- High-level radioactive waste;
- Intermediate and low-level radioactive waste;
- Components for reuse;
- Materials for recycling;
- Materials for energy recovery;
- Recovered energy exported from the product system.

TOTAL IMPACT SUMMARY

The following table reports the total LCA results for each product produced at the given waste receptacle facility on a per 1 waste receptacle basis.

Table 10: **Total life cycle (across modules in scope) impact results for 1500, assuming the geometric mean point values on a per 1 waste receptacle basis.**

Midpoint Impact Categories: 1500

Indicator/LCI Metric	AP	EP	GWP	ODP	PCOP	ADPe	ADPf
Unit	moles of H+-Eq	kg N	kg CO2-Eq	kg CFC-11-Eq	kg NOx-Eq	kg Sb-Eq	MJ, net calorific value
Minimum	82.1	0.103	314	2.33e-05	0.774	0.00889	4070
Maximum	127	0.163	496	3.68e-05	1.21	0.0135	6350
Mean	96.8	0.123	374	2.78e-05	0.916	0.0102	4820
Median	89.2	0.113	344	2.56e-05	0.84	0.00915	4440
MTR-1500-00001	82.1	0.103	314	2.33e-05	0.774	0.00889	4070
MTR-1500-00002	94.1	0.12	360	2.7e-05	0.883	0.0093	4630
MRR-1500-00007	84.2	0.106	328	2.42e-05	0.798	0.009	4250
MRR-1500-00016	127	0.163	496	3.68e-05	1.21	0.0135	6350

Inventory Metrics: 1500

Indicator/LCI Metric	TPE	RE	NRE	NRR	RR	WDP	LFW	LFHW
Unit	MJ-Eq	MJ-Eq	MJ-Eq	kg	m3	m3	kg waste	kg waste
Minimum	4640	383	4260	177	0.0107	2.81	149	0.0321
Maximum	7260	604	6640	279	0.0187	4.25	235	0.049
Mean	5510	452	5060	212	0.0129	3.3	177	0.0369
Median	5060	410	4660	196	0.0112	3.06	162	0.0332
MTR-1500-00001	4640	383	4260	177	0.0107	2.81	149	0.0321
MTR-1500-00002	5260	429	4850	207	0.0115	3.27	171	0.0339
MRR-1500-00007	4870	391	4470	184	0.0108	2.86	154	0.0326
MRR-1500-00016	7260	604	6640	279	0.0187	4.25	235	0.049

INTERPRETATION

The results are presented on a whole unit product basis.

ADDITIONAL ENVIRONMENTAL INFO

No regulated substances of very high concern are utilized on site.

"The Sub PCR, Sub Product Category Rule for Site Furnishings, CSI MasterFormat, Section 323300, states "A chemical schedule of hazardous materials and substances shall be included in the EPD report. The general cut-off rules do not apply to such substances. This includes paints, finishes, adhesives, and sealants. The EPD shall consist of a chemical schedule of all paints, finishes, adhesives, and sealants used on the product rages, whether they appear in the LCA product model or not.

Substances shall be listed by name, Chemical Abstract Registry Numbers (CAS RN), and hazard category according to the GreenScreen methodology. The finish schedule shall be completed to 0.1% or 1,000 ppm whenever possible."

Metal components of the Maglin Waste Receptacles can be powder coated. The chemical inventory below is for the powder coating of their products. It covers the full color line with all work performed by an outside vendor. Maglin does not have operational control over the painting process. An average amount of powder coating per bench component ranges from 0.01 to 0.06 kilograms of coating.

Table 11: **Hazard Screening for Powder Coating Substances**

Substance (May Contain)	CAS RN	Weight by %	GreenScreen Score
1,3-Benzenedicarboxylic acid (May Contain)	1.214996e+12	< 10	LT – UNK: Present on a GreenScreen Specified List, but there is insufficient information to classify the hazard This material was added based on the Quartz database of common building materials. The manufacturer would not disclose any trade secrets therefore this material may or may not be in the actual product.
Aluminum Powder (May Contain)	7429-90-5	1634256000	BM1: Avoid - Chemical of High Concern
Amorphous silica (May Contain)	7631-86-9	< 3	BM1: Avoid - Chemical of High Concern
Aluminum hydroxide (May Contain)	21645-51-2	1635552000	BM 2: Use but Search for Substitutes
Titanium Dioxide (May Contain)	13463-67-7	25-30	LT-1: GreenScreen Benchmark-1 Avoid - Chemical of High Concern
1,3,5-Triglycidyl-s-triazinetrione (May Contain)	2451-62-9	1609804800	LT-1: GreenScreen Benchmark-1 Avoid - Chemical of High Concern
Quartz (May Contain)	14808-60-7	1615161600	LT-1: GreenScreen Benchmark-1 Avoid - Chemical of High Concern
Diiron Trioxide (May Contain)	1309-37-1	1614902400	BM1: Avoid - Chemical of High Concern
Silica gel (Main Contain)	112926-00-8	1615161600	LT – UNK: Present on a GreenScreen Specified List, but there is insufficient information to classify the hazard

REFERENCES

ISO Standards:

- ISO 6707-1: 2014 Buildings and Civil Engineering Works - Vocabulary - Part 1: General Terms
- ISO 14021:1999 Environmental Labels and Declarations - Self-declared Environmental Claims (Type II Environmental Labeling)
- ISO 14025:2006 Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures
- ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and Framework
- ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and Guidelines
- ISO 14067:2018 Greenhouse Gases – Carbon Footprint of Products – Requirements and Guidelines for Quantification
- ISO 14050:2009 Environmental Management - Vocabulary
- ISO 21930:2017 Sustainability in Building Construction - Environmental Declaration of Building Products

EN Standards:

- EN 16757 Sustainability of construction works - Environmental product declarations – Product Category Rules for concrete and concrete elements
- EN 15804 Sustainability of construction works - Environmental product declarations -Core rules for the product category of construction products

Other References:

- USGBC LEED v4 for Building Design and Construction, 11 Jan 2019 available at https://www.usgbc.org/resources/pcr-committee-process-resources-part-b
- USGBC PCR Committee Process & Resources: Part B, USGBC, 7 July 2017 available at https://www.usgbc.org/resources/pcr-committee-process-resources-part-b.
- US EPA (2020) Advancing Sustainable Materials Management: 2018 Fact Sheet, https://www.epa.gov/sites/production/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf