Package Compare Report

Wednesday, 2024-05-08 01:00:30 PM

Goal & Scope

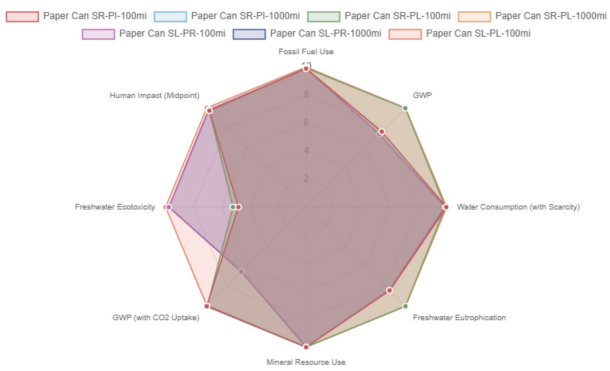
This report shows the environmental impact calculated using a screening Life Cycle Analysis. The analysis below can include the environmental impact for all life cycle phases in a Cradle-to-Grave analysis.

Analysis
Project Name: Sonoco Paper Can EOL Review Q3 2023
Project Description: Reviewing four potential EOL options for Sonoco Paper Can to determine lowest environmental impact EOL option. 1. Paper can w/ steel ends sent to steel mill (steel recycled, paper incinerated - SR-PI) 2. Paper can w/ steel ends sent to steel mill (steel recycled, paper landfilled - SR-PL) 3. Paper can w/ steel ends sent to paper mill (steel landfilled, paper recycled - SL-PR) 4. Paper can w/ steel ends sent to landfill (steel landfilled, paper landfilled - SL-PL)
Data Version: COMPASS 2023.3
User: katie.grote@trayak.com
Company: Sonoco - TRK
Number of BOMs in Analysis: 7
Status: Open
Type: Internal
Material Scrap Rates considered: No

Note: This COMPASS report uses life cycle inventory (LCI) data that represents an industry average for materials, manufacturing processes, and end of life impacts. The Life Cycle Analysis (LCA) in this report can be used for directional guidance in internal decision making and understanding trade-offs. COMPASS follows the guidelines of ISO 14040 in determining and documenting the scope, assumptions, consistent boundary conditions and data sources. According to ISO 14040, LCA results should not be used to make comparative assertions between competitive products to be disclosed to the public without first conducting a third party critical review.

Functional Unit: 1 item
The environmental impact calculated in this analysis is for the packaging required to deliver the amount of product described by the functional unit. This includes the number of primary, secondary and tertiary packages shown below. These package numbers were calculated based on the pallet configuration modeled in the BOM. If the secondary and tertiary package data is not entered their environmental impact cannot be calculated.The analysis below can include the environmental impact for all life cycle phases in a Cradle-to-Grave analysis.

Package Name	# of Primary Packages	# of Secondary Packages	# of Tertiary Packages
Paper Can SR-PI-100mi	1	0	0
Paper Can SR-PI-1000mi	1	0	0
Paper Can SR-PL-100mi	1	0	0
Paper Can SR-PL-1000mi	1	0	0
Paper Can SL-PR-100mi	1	0	0
Paper Can SL-PR-1000mi	1	0	0
Paper Can SL-PL-100mi	1	0	0



LCA Report Guidelines
All packaging/product components required to achieve the LCA goal are added to the BOM and included in the analysis : Yes
All significant manufacturing processes are included for the components of the BOM : Yes
Any components or manufacturing steps that are omitted are documented along with the reason for omission. : Yes
All relevant transportation modes & distances are included in the analysis. : Yes
Any proxies used for any of the data are documented. : Yes
All end-of-life rates for recycling, landfill, incineration etc. are appropriate for the selected end-of-life region. Any changes made are documented. : Yes

Total Environmental Impact

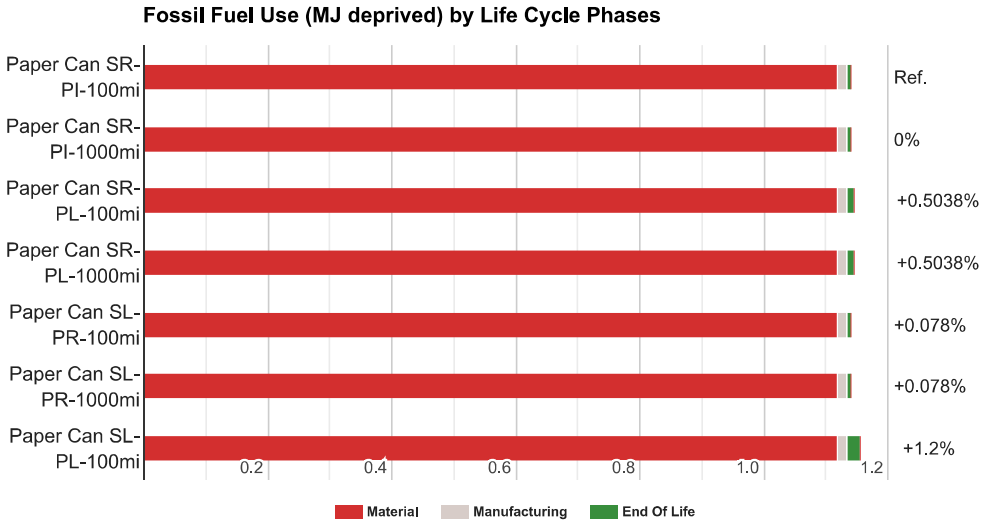
This section shows the total impact for each of the selected indicators used for the Life Cycle Analysis. Each indicator is composed of the material extraction, manufacturing, transportation, end of life, and use phase impacts. This will allow you to determine which life cycle phase has the greatest impact.

Note: The material phase measures the environmental footprint of extracting and processing materials. The manufacturing phase calculates the impact of the manufacturing or conversion processes that companies use to add value and create the package or product. Use phase includes the environmental impact during the useful life of the package/product. Typically, the use phase impact is due to the consumption of resources like electricity, fuel, or other consumables. For the transportation phase, the impact is calculated based on the mode of transportation (road, rail, air, sea) as well as the distances travelled. The end of life impact calculation incorporates the most likely fate of the product/package and its components based on typical curbside municipal waste management. Typical percentage rates for region based recycling, incineration, and landfill are used to calculate the impacts.

Fossil Fuel Use (MJ deprived)

This indicator considers the total quantity of fossil fuel consumed throughout the life cycle reported in megajoules (MJ) equivalents deprived/kg dissipated, which is based on an extraction-consumption-competition-adaptation approach. This indicator uses the Impact World+ method, uses the primary energy content, and assumes fossil resources mainly used for energy purposes. Fossil fuels include coal, petroleum, and natural gas.

Paper Can SR-PI-100mi	Material (98.14%)	1.12	Manufacturing (1.19%)	0.0135	Transportation (0%)	0	EndOfLife (0.6791%)	0.0078	UsePhase (0%)	0	Total	1.14
Paper Can SR-PI-1000mi	Material (98.14%)	1.12	Manufacturing (1.19%)	0.0135	Transportation (0%)	0	EndOfLife (0.6791%)	0.0078	UsePhase (0%)	0	Total	1.14
Paper Can SR-PL-100mi	Material (97.64%)	1.12	Manufacturing (1.18%)	0.0135	Transportation (0%)	0	EndOfLife (1.18%)	0.0135	UsePhase (0%)	0	Total	1.15
Paper Can SR-PL-1000mi	Material (97.64%)	1.12	Manufacturing (1.18%)	0.0135	Transportation (0%)	0	EndOfLife (1.18%)	0.0135	UsePhase (0%)	0	Total	1.15
Paper Can SL-PR-100mi	Material (98.06%)	1.12	Manufacturing (1.18%)	0.0135	Transportation (0%)	0	EndOfLife (0.7568%)	0.0086	UsePhase (0%)	0	Total	1.14
Paper Can SL-PR-1000mi	Material (98.06%)	1.12	Manufacturing (1.18%)	0.0135	Transportation (0%)	0	EndOfLife (0.7568%)	0.0086	UsePhase (0%)	0	Total	1.14
Paper Can SL-PL-100mi	Material (96.97%)	1.12	Manufacturing (1.17%)	0.0135	Transportation (0%)	0	EndOfLife (1.86%)	0.0215	UsePhase (0%)	0	Total	1.15



Simple Indicators

Computed based on the US Region

Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi

0 Barrels of Oil

0 Average Homes Powered Yearly

Paper Can SR-PL-100mi

0.0058 MJ deprived

9.411e-7 Barrels of Oil

1.538e-7 Average Homes Powered Yearly

Paper Can SR-PL-1000mi

0.0058 MJ deprived

9.411e-7 Barrels of Oil

1.538e-7 Average Homes Powered Yearly

Paper Can SL-PR-100mi

0.00089282 MJ deprived

1.459e-7 Barrels of Oil

2.38e-8 Average Homes Powered Yearly

Paper Can SL-PR-1000mi

0.00089282 MJ deprived

1.459e-7 Barrels of Oil

2.38e-8 Average Homes Powered Yearly

Paper Can SL-PL-100mi

0.0137 MJ deprived

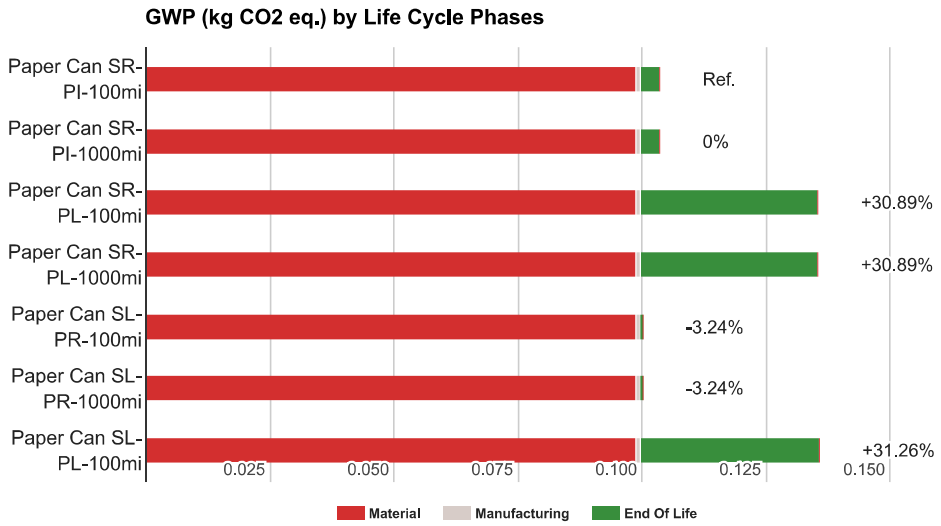
0.0000022414 Barrels of Oil

3.663e-7 Average Homes Powered Yearly

GWP (kg CO_2 eq.)

Global Warming Potential (GWP) considers the total quantity of greenhouse gasses (GHG) emitted throughout the life cycle reported in kilograms of CO2 equivalents. This calculation follows the IPCC Sixth Assessment Report (AR6) 2021 100a w/o CO2 Uptake method and considers climate feedback loops. It considers global warming potential for a 100-year timeframe.

Paper Can SR-PI-100mi	Material 0.0988 (95.35%)	Manufacturing 0.00077673 (0.7498%)	Transportation 0 (0%)	EndOfLife 0.004 (3.9%)	UsePhase 0 (0%)	Total 0.1036
Paper Can SR-PI-1000mi	Material 0.0988 (95.35%)	Manufacturing 0.00077673 (0.7498%)	Transportation 0 (0%)	EndOfLife 0.004 (3.9%)	UsePhase 0 (0%)	Total 0.1036
Paper Can SR-PL-100mi	Material 0.0988 (72.84%)	Manufacturing 0.00077673 (0.5728%)	Transportation 0 (0%)	EndOfLife 0.036 (26.58%)	UsePhase 0 (0%)	Total 0.1356
Paper Can SR-PL-1000mi	Material 0.0988 (72.84%)	Manufacturing 0.00077673 (0.5728%)	Transportation 0 (0%)	EndOfLife 0.036 (26.58%)	UsePhase 0 (0%)	Total 0.1356
Paper Can SL-PR-100mi	Material 0.0988 (98.54%)	Manufacturing 0.00077673 (0.7749%)	Transportation 0 (0%)	EndOfLife 0.00068287 (0.6813%)	UsePhase 0 (0%)	Total 0.1002
Paper Can SL-PR-1000mi	Material 0.0988 (98.54%)	Manufacturing 0.00077673 (0.7749%)	Transportation 0 (0%)	EndOfLife 0.00068287 (0.6813%)	UsePhase 0 (0%)	Total 0.1002
Paper Can SL-PL-100mi	Material 0.0988 (72.64%)	Manufacturing 0.00077673 (0.5713%)	Transportation 0 (0%)	EndOfLife 0.0364 (26.79%)	UsePhase 0 (0%)	Total 0.136



Simple Indicators

Computed based on the US Region

Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi

0 Passenger Vehicles Driven Yearly

0 Kilometers Driven by Passenger Vehicles Yearly

0 Liters of Gasoline Consumed

0 Tree Seedlings Grown for 10 Years

Paper Can SR-PL-100mi

0.032 kg CO_2 eq.

0.0000068535 Passenger Vehicles Driven Yearly

0.1262 Kilometers Driven by Passenger Vehicles Yearly

0.0136 Liters of Gasoline Consumed

0.00082938 Tree Seedlings Grown for 10 Years

0.000015238 Hectares of Forests Yearly

Paper Can SR-PL-1000mi

0.032 kg CO_2 eq.

0.0000068535 Passenger Vehicles Driven Yearly

0.1262 Kilometers Driven by Passenger Vehicles Yearly

0.0136 Liters of Gasoline Consumed

0.00082938 Tree Seedlings Grown for 10 Years

0.000015238 Hectares of Forests

Paper Can SL-PR-100mi

0.0034 kg CO_2 eq.

7.188e-7 Passenger Vehicles Driven Yearly

0.0132 Kilometers Driven by Passenger Vehicles Yearly

0.0014 Liters of Gasoline Consumed

0.00008699 Tree Seedlings Grown for 10 Years

0.0000015982 Hectares of Forests Yearly

Paper Can SL-PR-1000mi

0.0034 kg CO_2 eq.

7.188e-7 Passenger Vehicles Driven Yearly

0.0132 Kilometers Driven by Passenger Vehicles Yearly

0.0014 Liters of Gasoline Consumed

0.00008699 Tree Seedlings Grown for 10 Years

0.0000015982 Hectares of Forests

Paper Can SL-PL-100mi

0.0324 kg CO_2 eq.

0.0000069339 Passenger Vehicles Driven Yearly

0.1277 Kilometers Driven by Passenger Vehicles Yearly

0.0138 Liters of Gasoline Consumed

0.00083911 Tree Seedlings Grown for 10 Years

0.000015417 Hectares of Forests Yearly

0 Hectares of Forests Yearly

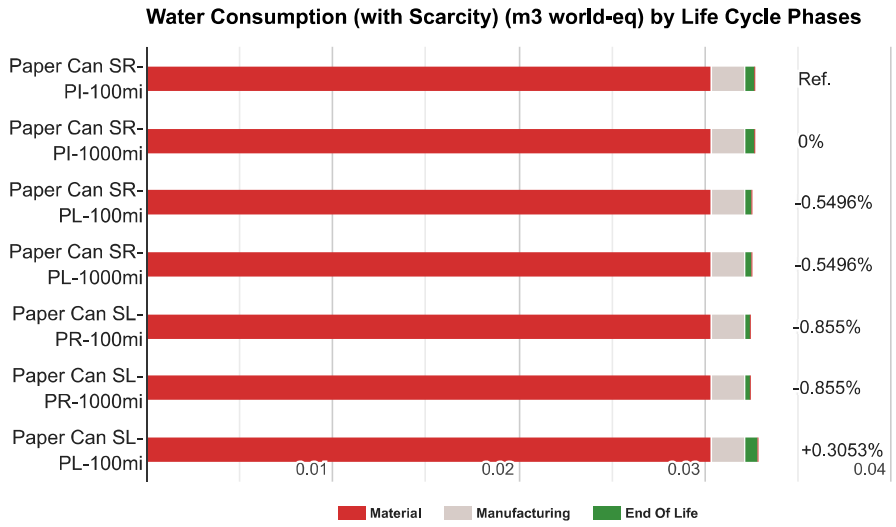
Yearly

Yearly

Water Consumption (with Scarcity) (m^3 world-eq)

This indicator considers the relative available water remaining per area in a watershed after the demand of humans, aquatic ecosystems, and manufacturing process has been met, compared to the world average. The AWARE method is used to calculate the water scarcity footprint, which looks at the potential to deprive another freshwater user by consuming freshwater in a given region. The water scarcity footprint is the water consumption inventory multiplied by a characterization factor, which is based on the availability and demand of freshwater in a given region. The characterization factors have a range of 0.1 to 100, with higher numbers associated with more water-scarce regions, and are dimensionless (m3 world eq./m3). The water scarcity footprint results are typically reported in m3 world-eq. but may be reported in liters world-eq. if there is a small quantity of water being considered in the analysis by EcoImpact-COMPASS.

Paper Can SR-PI-100mi	Material 0.0304 (92.78%)	Manufacturing 0.0018 (5.42%)	Transportation 0 (0%)	EndOfLife 0.00059061 (1.8%)	UsePhase 0 (0%)	Total 0.0328
Paper Can SR-PI-1000mi	Material 0.0304 (92.78%)	Manufacturing 0.0018 (5.42%)	Transportation 0 (0%)	EndOfLife 0.00059061 (1.8%)	UsePhase 0 (0%)	Total 0.0328
Paper Can SR-PL-100mi	Material 0.0304 (93.3%)	Manufacturing 0.0018 (5.45%)	Transportation 0 (0%)	EndOfLife 0.00040595 (1.25%)	UsePhase 0 (0%)	Total 0.0326
Paper Can SR-PL-1000mi	Material 0.0304 (93.3%)	Manufacturing 0.0018 (5.45%)	Transportation 0 (0%)	EndOfLife 0.00040595 (1.25%)	UsePhase 0 (0%)	Total 0.0326
Paper Can SL-PR-100mi	Material 0.0304 (93.58%)	Manufacturing 0.0018 (5.47%)	Transportation 0 (0%)	EndOfLife 0.00030944 (0.953%)	UsePhase 0 (0%)	Total 0.0325
Paper Can SL-PR-1000mi	Material 0.0304 (93.58%)	Manufacturing 0.0018 (5.47%)	Transportation 0 (0%)	EndOfLife 0.00030944 (0.953%)	UsePhase 0 (0%)	Total 0.0325
Paper Can SL-PL-100mi	Material 0.0304 (92.49%)	Manufacturing 0.0018 (5.4%)	Transportation 0 (0%)	EndOfLife 0.00069076 (2.1%)	UsePhase 0 (0%)	Total 0.0329



Simple Indicators

Computed based on the US Region

Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi

0 Gallons of Water

0 Average Showers

0 People Showering Daily for a Year

0 Olympic Sized

Paper Can SR-PL-100mi **0.00018466 m^3 world-eq**

0.0488 Gallons of Water

0.0028 Average Showers

0.0000077714 People Showering Daily for a Year

7.39e-8 Olympic Sized Swimming

Paper Can SR-PL-1000mi **0.00018466 m^3 world-eq**

0.0488 Gallons of Water

0.0028 Average Showers

0.0000077714 People Showering Daily for a Year

Paper Can SL-PR-100mi **0.00028117 m^3 world-eq**

0.0743 Gallons of Water

0.0043 Average Showers

0.000011833 People Showering Daily for a Year

Paper Can SL-PR-1000mi **0.00028117 m^3 world-eq**

0.0743 Gallons of Water

0.0043 Average Showers

0.000011833 People Showering Daily for a Year

Paper Can SL-PL-100mi **0.00010015 m^3 world-eq**

0.0265 Gallons of Water

0.0015 Average Showers

0.0000042147 People Showering Daily for a Year

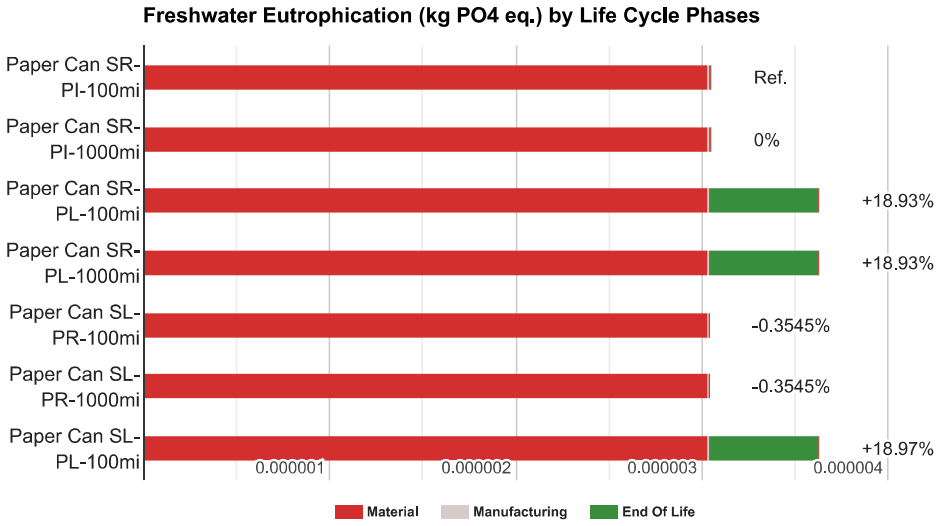
4.01e-8 Olympic Sized Swimming

Swimming Pools Pools 7.39e-8 Sized Pools Olympic Swimming 1.125e-7 Sized Pools Olympic Swimming 1.125e-7 Sized Pools Olympic Swimming Pools

Freshwater Eutrophication (kg PO_4 eq.)

Eutrophication is the abnormal increase in chemical nutrients that causes excessive plant/algal growth and decay resulting in an anoxic condition in freshwater systems, the major consequence being algal blooms. For freshwater systems, phosphorus is considered the limiting nutrient for eutrophication. Typically, these are emissions of phosphorus compounds released during the production of materials. For this indicator, the increase in phosphorus mass per kg discharged to freshwater is calculated with Impact World+ characterization factors, which uses the model from Helmes et al. (2012). Advection, retention, and water use are considered when looking at the fate of phosphorus in freshwater. This indicator is reported in phosphate (PO4) equivalents.

Paper Can SR-PI-100mi	Material 0.0000030315 (99.32%)	Manufacturing 7.022e-9 (0.2301%)	Transportation 0 (0%)	EndOfLife 1.3775e-8 (0.4513%)	UsePhase 0 (0%)	Total 0.0000030523
Paper Can SR-PI-1000mi	Material 0.0000030315 (99.32%)	Manufacturing 7.022e-9 (0.2301%)	Transportation 0 (0%)	EndOfLife 1.3775e-8 (0.4513%)	UsePhase 0 (0%)	Total 0.0000030523
Paper Can SR-PL-100mi	Material 0.0000030315 (83.51%)	Manufacturing 7.022e-9 (0.1934%)	Transportation 0 (0%)	EndOfLife 5.9164e-7 (16.3%)	UsePhase 0 (0%)	Total 0.0000036301
Paper Can SR-PL-1000mi	Material 0.0000030315 (83.51%)	Manufacturing 7.022e-9 (0.1934%)	Transportation 0 (0%)	EndOfLife 5.9164e-7 (16.3%)	UsePhase 0 (0%)	Total 0.0000036301
Paper Can SL-PR-100mi	Material 0.0000030315 (99.67%)	Manufacturing 7.022e-9 (0.2309%)	Transportation 0 (0%)	EndOfLife 2.9562e-9 (0.0972%)	UsePhase 0 (0%)	Total 0.0000030414
Paper Can SL-PR-1000mi	Material 0.0000030315 (99.67%)	Manufacturing 7.022e-9 (0.2309%)	Transportation 0 (0%)	EndOfLife 2.9562e-9 (0.0972%)	UsePhase 0 (0%)	Total 0.0000030414
Paper Can SL-PL-100mi	Material 0.0000030315 (83.48%)	Manufacturing 7.022e-9 (0.1934%)	Transportation 0 (0%)	EndOfLife 5.9276e-7 (16.32%)	UsePhase 0 (0%)	Total 0.0000036313



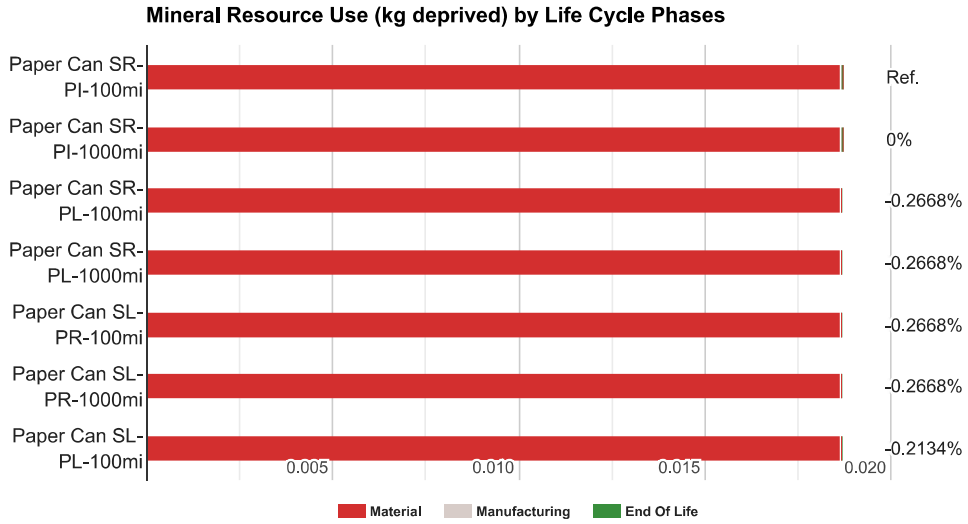
Freshwater Eutrophication Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi	Paper Can SR-PL-100mi	Paper Can SR-PL-1000mi	Paper Can SL-PR-100mi	Paper Can SL-PR-1000mi	Paper Can SL-PL-100mi
	5.7786e-7 kg PO_4 eq.	5.7786e-7 kg PO_4 eq.	1.0819e-8 kg PO_4 eq.	1.0819e-8 kg PO_4 eq.	5.7898e-7 kg PO_4 eq.

Mineral Resource Use (kg deprived)

This indicator is expressed in kg of deprived resource/kg of dissipated resource, uses the material competition scarcity index (MACSI) from de Bruille (2014) as a midpoint indicator, and is pulled from Impact World+. The factor represents the fraction of material needed by future users that are not able to find a reliable substitute for the mineral. The MACSI varies from 0% to 100%, with the higher numbers corresponding to more competition among users and takes into account the amount of material remaining, the rate of resource dissipation, and the rate of user adaptation. The MACSI essentially relates to the fraction of a given material's users that will not be able to adapt to depletion of the material by using another resource.

Paper Can SR-PI-100mi	Material (99.64%)	0.0187	Manufacturing (0.0447%)	0.000008385	Transportation (0%)	0	EndOfLife (0.3123%)	0.000058512	UsePhase (0%)	0	Total	0.0187
Paper Can SR-PI-1000mi	Material (99.64%)	0.0187	Manufacturing (0.0447%)	0.000008385	Transportation (0%)	0	EndOfLife (0.3123%)	0.000058512	UsePhase (0%)	0	Total	0.0187
Paper Can SR-PL-100mi	Material (99.89%)	0.0187	Manufacturing (0.0449%)	0.000008385	Transportation (0%)	0	EndOfLife (0.0683%)	0.000012775	UsePhase (0%)	0	Total	0.0187
Paper Can SR-PL-1000mi	Material (99.89%)	0.0187	Manufacturing (0.0449%)	0.000008385	Transportation (0%)	0	EndOfLife (0.0683%)	0.000012775	UsePhase (0%)	0	Total	0.0187
Paper Can SL-PR-100mi	Material (99.9%)	0.0187	Manufacturing (0.0449%)	0.000008385	Transportation (0%)	0	EndOfLife (0.0556%)	0.000010396	UsePhase (0%)	0	Total	0.0187
Paper Can SL-PR-1000mi	Material (99.9%)	0.0187	Manufacturing (0.0449%)	0.000008385	Transportation (0%)	0	EndOfLife (0.0556%)	0.000010396	UsePhase (0%)	0	Total	0.0187
Paper Can SL-PL-100mi	Material (99.84%)	0.0187	Manufacturing (0.0448%)	0.000008385	Transportation (0%)	0	EndOfLife (0.1189%)	0.000022228	UsePhase (0%)	0	Total	0.0187



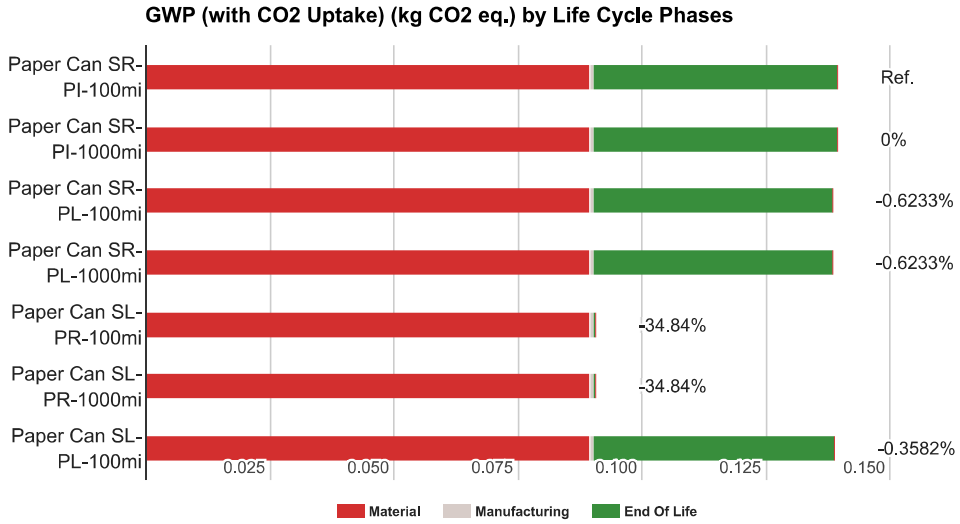
Mineral Resource Use Differences for each BOM compared to the reference

	Paper Can SR-PL-100mi	Paper Can SR-PL-1000mi	Paper Can SL-PR-100mi	Paper Can SL-PR-1000mi	Paper Can SL-PL-100mi
Paper Can SR-PI-1000mi	**0.000045737 kg deprived**	**0.000045737 kg deprived**	**0.000048116 kg deprived**	**0.000048116 kg deprived**	**0.000036284 kg deprived**

GWP (with CO_2 Uptake) (kg CO_2 eq.)

Global Warming Potential (GWP) with CO2 uptake considers the total quantity of greenhouse gasses (GHG) emitted throughout the life cycle reported in kilograms of CO2 equivalents. This calculation follows the IPCC Sixth Assessment Report (AR6) 2021 100a w/ CO2 Uptake method. It considers global warming potential for a 100-year timeframe. This indicator also accounts for carbon sequestration and biogenic carbon emissions.

Paper Can SR-PI-100mi	Material (64.19%)	0.0896	Manufacturing (0.484%)	0.00067548	Transportation (0%)	0	EndOfLife (35.33%)	0.0493	UsePhase (0%)	0	Total	0.1396
Paper Can SR-PI-1000mi	Material (64.19%)	0.0896	Manufacturing (0.484%)	0.00067548	Transportation (0%)	0	EndOfLife (35.33%)	0.0493	UsePhase (0%)	0	Total	0.1396
Paper Can SR-PL-100mi	Material (64.59%)	0.0896	Manufacturing (0.487%)	0.00067548	Transportation (0%)	0	EndOfLife (34.92%)	0.0484	UsePhase (0%)	0	Total	0.1387
Paper Can SR-PL-1000mi	Material (64.59%)	0.0896	Manufacturing (0.487%)	0.00067548	Transportation (0%)	0	EndOfLife (34.92%)	0.0484	UsePhase (0%)	0	Total	0.1387
Paper Can SL-PR-100mi	Material (98.5%)	0.0896	Manufacturing (0.7427%)	0.00067548	Transportation (0%)	0	EndOfLife (0.753%)	0.00068482	UsePhase (0%)	0	Total	0.0909
Paper Can SL-PR-1000mi	Material (98.5%)	0.0896	Manufacturing (0.7427%)	0.00067548	Transportation (0%)	0	EndOfLife (0.753%)	0.00068482	UsePhase (0%)	0	Total	0.0909
Paper Can SL-PL-100mi	Material (64.42%)	0.0896	Manufacturing (0.4857%)	0.00067548	Transportation (0%)	0	EndOfLife (35.1%)	0.0488	UsePhase (0%)	0	Total	0.1391



Simple Indicators

Computed based on the US Region

Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi

0 Passenger Vehicles Driven Yearly

0 Kilometers Driven by Passenger Vehicles Yearly

0 Liters of Gasoline Consumed

0 Tree Seedlings Grown for 10 Years

Paper Can SR-PL-100mi 0.00087078 kg CO_2 eq.

1.865e-7 Passenger Vehicles Driven Yearly

0.0034 Kilometers Driven by Passenger Vehicles Yearly

0.00037091 Liters of Gasoline Consumed

0.000022565 Tree Seedlings Grown for 10 Years

4.146e-7 Hectares of Forests Yearly

Paper Can SR-PL-1000mi 0.00087078 kg CO_2 eq.

1.865e-7 Passenger Vehicles Driven Yearly

0.0034 Kilometers Driven by Passenger Vehicles Yearly

0.00037091 Liters of Gasoline Consumed

0.000022565 Tree Seedlings Grown for 10 Years

4.146e-7 Hectares of Forests Yearly

Paper Can SL-PR-100mi 0.0486 kg CO_2 eq.

0.000010411 Passenger Vehicles Driven Yearly

0.1918 Kilometers Driven by Passenger Vehicles Yearly

0.0207 Liters of Gasoline Consumed

0.0013 Tree Seedlings Grown for 10 Years

0.000023148 Hectares of Forests Yearly

Paper Can SL-PR-1000mi 0.0486 kg CO_2 eq.

0.000010411 Passenger Vehicles Driven Yearly

0.1918 Kilometers Driven by Passenger Vehicles Yearly

0.0207 Liters of Gasoline Consumed

0.0013 Tree Seedlings Grown for 10 Years

0.000023148 Hectares of Forests

Paper Can SL-PL-100mi 0.00049331 kg CO_2 eq.

1.056e-7 Passenger Vehicles Driven Yearly

0.0019 Kilometers Driven by Passenger Vehicles Yearly

0.00021013 Liters of Gasoline Consumed

0.000012784 Tree Seedlings Grown for 10 Years

2.3488e-7 Hectares of Forests Yearly

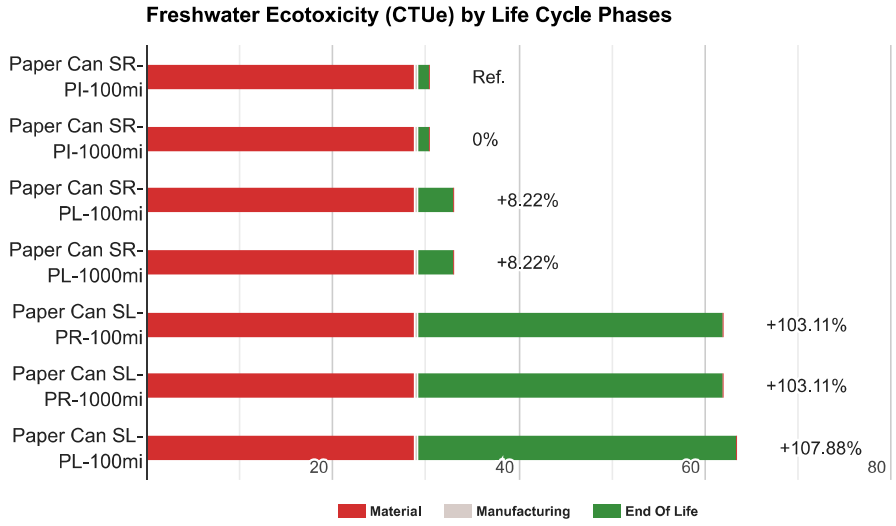
0 Hectares of Forests Yearly

Yearly

Freshwater Ecotoxicity (CTUe)

This indicator is a measure of the ecotoxicity impact of chemical releases to air, water, and land using aquatic toxicity factors and is calculated using the Impact World+ midpoint indicator with exclusion of long-term emissions. Impact World+ uses and adapts USEtox, a scientific consensus model, to calculate characterization factors for freshwater ecotoxicity. This indicator is reported in comparative toxic units (CTUe) per unit mass of chemical emitted. CTUe corresponds to the potentially affected fraction (PAF) of the species exposed in the ecosystem for a given time and water volume per unit mass of a chemical emitted.

Paper Can SR-PI-100mi	Material (94.6%)	28.86	Manufacturing (0.7268%)	0.2217	Transportation (0%)	0	EndOfLife (4.67%)	1.43	UsePhase (0%)	0	Total 30.5
Paper Can SR-PI-1000mi	Material (94.6%)	28.86	Manufacturing (0.7268%)	0.2217	Transportation (0%)	0	EndOfLife (4.67%)	1.43	UsePhase (0%)	0	Total 30.5
Paper Can SR-PL-100mi	Material (87.41%)	28.86	Manufacturing (0.6715%)	0.2217	Transportation (0%)	0	EndOfLife (11.91%)	3.93	UsePhase (0%)	0	Total 33.01
Paper Can SR-PL-1000mi	Material (87.41%)	28.86	Manufacturing (0.6715%)	0.2217	Transportation (0%)	0	EndOfLife (11.91%)	3.93	UsePhase (0%)	0	Total 33.01
Paper Can SL-PR-100mi	Material (46.58%)	28.86	Manufacturing (0.3578%)	0.2217	Transportation (0%)	0	EndOfLife (53.07%)	32.88	UsePhase (0%)	0	Total 61.95
Paper Can SL-PR-1000mi	Material (46.58%)	28.86	Manufacturing (0.3578%)	0.2217	Transportation (0%)	0	EndOfLife (53.07%)	32.88	UsePhase (0%)	0	Total 61.95
Paper Can SL-PL-100mi	Material (45.51%)	28.86	Manufacturing (0.3496%)	0.2217	Transportation (0%)	0	EndOfLife (54.14%)	34.33	UsePhase (0%)	0	Total 63.41



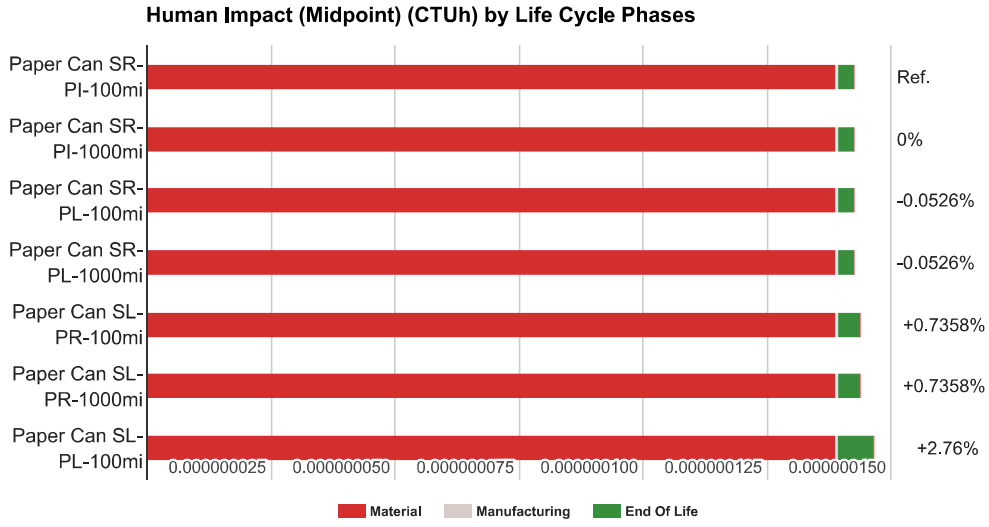
Freshwater Ecotoxicity Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi	Paper Can SR-PL-100mi	Paper Can SR-PL-1000mi	Paper Can SL-PR-100mi	Paper Can SL-PR-1000mi	Paper Can SL-PL-100mi
	2.51 CTUe	2.51 CTUe	31.45 CTUe	31.45 CTUe	32.91 CTUe

Human Impact (Midpoint) (CTUh)

This is a midpoint indicator calculating the quantity of short-term environment emissions resulting in cancer & toxic non-cancer impacts to humans released throughout the life cycle. This midpoint indicator reports these metrics in terms of Comparative Toxic Units human (CTUh). This indicator is calculated using Impact World+, which uses and adapts USEtox to generate toxicity characterization factors. Inhalation of household and industrial indoor emissions and ingestion of pesticide residues from crops are considered. According to the ILCD (International Reference Life Cycle Data System) Handbook: Recommendations for Life Cycle Impact Assessment in the European context, "the compatibility between midpoint and endpoint recommendations is ensured since the midpoint indicator defined in USEtox as Comparative Toxic Units (CTUhuman) corresponds to cases of cancer and non cancer, whereas the severity factor reflects the Disability Adjusted Life Years per case.

Paper Can SR-PI-100mi	Material 1.3911e-7 (97.48%)	Manufacturing 1.8674e-10 (0.1309%)	Transportation 0 (0%)	EndOfLife 3.4031e-9 (2.38%)	UsePhase 0 (0%)	Total 1.427e-7
Paper Can SR-PI-1000mi	Material 1.3911e-7 (97.48%)	Manufacturing 1.8674e-10 (0.1309%)	Transportation 0 (0%)	EndOfLife 3.4031e-9 (2.38%)	UsePhase 0 (0%)	Total 1.427e-7
Paper Can SR-PL-100mi	Material 1.3911e-7 (97.54%)	Manufacturing 1.8674e-10 (0.1309%)	Transportation 0 (0%)	EndOfLife 3.3278e-9 (2.33%)	UsePhase 0 (0%)	Total 1.4262e-7
Paper Can SR-PL-1000mi	Material 1.3911e-7 (97.54%)	Manufacturing 1.8674e-10 (0.1309%)	Transportation 0 (0%)	EndOfLife 3.3278e-9 (2.33%)	UsePhase 0 (0%)	Total 1.4262e-7
Paper Can SL-PR-100mi	Material 1.3911e-7 (96.77%)	Manufacturing 1.8674e-10 (0.1299%)	Transportation 0 (0%)	EndOfLife 4.4531e-9 (3.1%)	UsePhase 0 (0%)	Total 1.4375e-7
Paper Can SL-PR-1000mi	Material 1.3911e-7 (96.77%)	Manufacturing 1.8674e-10 (0.1299%)	Transportation 0 (0%)	EndOfLife 4.4531e-9 (3.1%)	UsePhase 0 (0%)	Total 1.4375e-7
Paper Can SL-PL-100mi	Material 1.3911e-7 (94.86%)	Manufacturing 1.8674e-10 (0.1273%)	Transportation 0 (0%)	EndOfLife 7.3475e-9 (5.01%)	UsePhase 0 (0%)	Total 1.4664e-7



Human Impact (Midpoint) Differences for each BOM compared to the reference

Paper Can SR-PI-1000mi	Paper Can SR-PL-100mi	Paper Can SR-PL-1000mi	Paper Can SL-PR-100mi	Paper Can SL-PR-1000mi	Paper Can SL-PL-100mi
	7.5286e-11 CTUh	7.5286e-11 CTUh	1.05e-9 CTUh	1.05e-9 CTUh	3.9444e-9 CTUh

Input Package Bill of Material (BOM)

This section outlines the input given for the Life Cycle Analysis in the form of complete BOMs. For each component, the material, manufacturing process, number of occurrences, and mass is listed.

Paper Can SR-PI-100mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SR-PI-100mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Recycled, Paper Incinerated						1.0			
Steel Base	Steel	10 %	0 %		25.23 g	1.0		Can	100 %
Paper Composite Cylinder (1 item count)						1.0		Other	
Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0		Bag	0 %
Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0		Bag	0 %
Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0		Can	0 %
HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0		Bag	0 %

PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0		Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0		Bag	3 %

Paper Can SR-PI-1000mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SR-PI-1000mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Recycled, Paper Incinerated						1.0			
Steel Base	Steel	10 %	0 %		25.23 g	1.0		Can	100 %
Paper Composite Cylinder (1 item count)						1.0		Other	
Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0		Bag	0 %
Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0		Bag	0 %
Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0		Can	0 %

HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0		Bag	0 %
PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0		Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0		Bag	3 %

Paper Can SR-PL-100mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SR-PL-100mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Recycled, Paper Landfilled						1.0			
Steel Base	Steel	10 %	0 %		25.23 g	1.0		Can	100 %
Paper Composite Cylinder (1 item count)						1.0		Other	
Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0		Bag	0 %
Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0		Bag	0 %

Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0	Can	0 %
HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0	Bag	0 %
PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0	Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0	Bag	3 %

Paper Can SR-PL-1000mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SR-PL-1000mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Recycled, Paper Landfilled						1.0			
Steel Base	Steel	10 %	0 %		25.23 g	1.0		Can	100 %
Paper Composite Cylinder (1 item count)						1.0		Other	
Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0		Bag	0 %

Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0	Bag	0 %
Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0	Can	0 %
HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0	Bag	0 %
PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0	Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0	Bag	3 %

Paper Can SL-PR-100mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SL-PR-100mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Landfilled, Paper Recycled						1.0			
Steel Base	Steel	10 %	0 %		25.23 g	1.0		Can	0 %
Paper Composite Cylinder (1 item count)						1.0		Other	

Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0		Bag	100 %
Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0		Bag	100 %
Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0		Can	0 %
HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0		Bag	0 %
PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0		Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0		Bag	3 %

Paper Can SL-PR-1000mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SL-PR-1000mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Landfilled, Paper Recycled						1.0			
Steel Base	Steel	10 %	0 %		25.23 g	1.0		Can	0 %

Paper Composite Cylinder (1 item count)						1.0		Other	
Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0		Bag	100 %
Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0		Bag	100 %
Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0		Can	0 %
HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0		Bag	0 %
PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0		Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0		Bag	3 %

Paper Can SL-PL-100mi

BOM Classifications

BOM Name	Quantity(Each)	Mfg. Region	Sales-Use Region	Base Unit
Paper Can SL-PL-100mi	1	US	US	item count

Category	SKU	Brand	Product Type	Status	Channel	Launch Date	Retired Date
NA		NA	NA	NA	NA	NA	NA

Name	Material	PCR %	PIR %	Manufacturing Process	Mass Per Occurrence	#	Transport	Component Type	EOL Recycling Potential
Paper Can Steel Landfilled, Paper Landfilled						1.0			

Steel Base	Steel	10 %	0 %		25.23 g	1.0	Can	0 %
Paper Composite Cylinder (1 item count)						1.0	Other	
Recycled Paperboard	Unbleached Kraft Paper	90 %	10 %		27.1 g	1.0	Bag	0 %
Kraft Paper	Unbleached Kraft Paper	0 %	0 %		3.9 g	1.0	Bag	0 %
Aluminum Foil	Aluminum	0 %	0 %	Aluminum Sheet Rolling (0.2 to 6 mm)	0.4 g	1.0	Can	0 %
HDPE Film	High-Density Polyethylene (HDPE)	0 %	0 %	Film Extrusion	0.5 g	1.0	Bag	0 %
PET Film	Polyethylene Terephthalate (PET)	0 %	0 %	Film Extrusion	0.8 g	1.0	Bag	0 %
PVA Adhesive	Polyvinyl Acetate (PVA)	0 %	0 %		0.3 g	1.0	Bag	3 %

Compare BOM Details

Name	Unit Of Measure	Quantity	Total Package Weight/Unit Product Ratio	EOL Recycling Potential	EOL Recycling Potential (%)	EOL Waste Potential	EOL Waste Potential (%)	EOL Total Mass
Paper Can SR-PI-100mi	Each	1	58.23 g/item count	0.0252 kg	43.34	0.033 kg	56.66	0.0582 kg
Paper Can SR-PI-1000mi	Each	1	58.23 g/item count	0.0252 kg	43.34	0.033 kg	56.66	0.0582 kg
Paper Can SR-PL-100mi	Each	1	58.23 g/item count	0.0252 kg	43.34	0.033 kg	56.66	0.0582 kg
Paper Can SR-PL-1000mi	Each	1	58.23 g/item count	0.0252 kg	43.34	0.033 kg	56.66	0.0582 kg
Paper Can SL-PR-100mi	Each	1	58.23 g/item count	0.031 kg	53.25	0.0272 kg	46.75	0.0582 kg
Paper Can SL-PR-1000mi	Each	1	58.23 g/item count	0.031 kg	53.25	0.0272 kg	46.75	0.0582 kg
Paper Can SL-PL-100mi	Each	1	58.23 g/item count	0.000009 kg	0.0155	0.0582 kg	99.98	0.0582 kg

Component EOL Percentage Breakdown

Paper Can SR-PI-100mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Recycled, Paper Incinerated				
Steel Base	100 %	0 %	0 %	0 %
Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %
Recycled Paperboard	0 %	100 %	0 %	0 %
Kraft Paper	0 %	100 %	0 %	0 %
Aluminum Foil	0 %	100 %	0 %	0 %
HDPE Film	0 %	100 %	0 %	0 %
PET Film	0 %	100 %	0 %	0 %
PVA Adhesive	3 %	19 %	0 %	78 %

Paper Can SR-PI-1000mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Recycled, Paper Incinerated				
Steel Base	100 %	0 %	0 %	0 %
Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %

Recycled Paperboard	0 %	100 %	0 %	0 %
Kraft Paper	0 %	100 %	0 %	0 %
Aluminum Foil	0 %	100 %	0 %	0 %
HDPE Film	0 %	100 %	0 %	0 %
PET Film	0 %	100 %	0 %	0 %
PVA Adhesive	3 %	19 %	0 %	78 %

Paper Can SR-PL-100mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Recycled, Paper Landfilled				
Steel Base	100 %	0 %	0 %	0 %
Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %
Recycled Paperboard	0 %	0 %	0 %	100 %
Kraft Paper	0 %	0 %	0 %	100 %
Aluminum Foil	0 %	0 %	0 %	100 %
HDPE Film	0 %	0 %	0 %	100 %
PET Film	0 %	0 %	0 %	100 %
PVA Adhesive	3 %	19 %	0 %	78 %

Paper Can SR-PL-1000mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Recycled, Paper Landfilled				
Steel Base	100 %	0 %	0 %	0 %
Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %
Recycled Paperboard	0 %	0 %	0 %	100 %
Kraft Paper	0 %	0 %	0 %	100 %
Aluminum Foil	0 %	0 %	0 %	100 %
HDPE Film	0 %	0 %	0 %	100 %
PET Film	0 %	0 %	0 %	100 %
PVA Adhesive	3 %	19 %	0 %	78 %

Paper Can SL-PR-100mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Landfilled, Paper Recycled				
Steel Base	0 %	0 %	0 %	100 %

Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %
Recycled Paperboard	100 %	0 %	0 %	0 %
Kraft Paper	100 %	0 %	0 %	0 %
Aluminum Foil	0 %	0 %	0 %	100 %
HDPE Film	0 %	0 %	0 %	100 %
PET Film	0 %	0 %	0 %	100 %
PVA Adhesive	3 %	19 %	0 %	78 %

Paper Can SL-PR-1000mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Landfilled, Paper Recycled				
Steel Base	0 %	0 %	0 %	100 %
Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %
Recycled Paperboard	100 %	0 %	0 %	0 %
Kraft Paper	100 %	0 %	0 %	0 %
Aluminum Foil	0 %	0 %	0 %	100 %
HDPE Film	0 %	0 %	0 %	100 %
PET Film	0 %	0 %	0 %	100 %
PVA Adhesive	3 %	19 %	0 %	78 %

Paper Can SL-PL-100mi

Name	EOL Recycling Potential %	EOL Waste to Energy Potential %	EOL Composting Potential %	EOL Landfill Potential %
Paper Can Steel Landfilled, Paper Landfilled				
Steel Base	0 %	0 %	0 %	100 %
Paper Composite Cylinder (1 item count)	0 %	0 %	0 %	0 %
Recycled Paperboard	0 %	0 %	0 %	100 %
Kraft Paper	0 %	0 %	0 %	100 %
Aluminum Foil	0 %	0 %	0 %	100 %
HDPE Film	0 %	0 %	0 %	100 %
PET Film	0 %	0 %	0 %	100 %
PVA Adhesive	3 %	19 %	0 %	78 %

End Of Life Distribution

The recycling, landfill, incineration and composting rates for product/package depends on the infrastructure available in that region. Each component included in this report therefore has its own EOL fate based on these rates. The illustration below shows the aggregate fate of all the packaging or product included in this report.