

CARBON FOOTPRINT REPORT

Astro PB62



Made with better materials

- 90% materials can be reused or recycled

Energy Efficient

- Energy Star Standard qualified

Responsible packaging

- Recyclable packaging materials and made by recycled material



Our green company performance supports our sustainability initiatives and meets our customer needs

Applying life cycle assessment is essential to identify and quantify the environmental impact of our products. Therefore, we consider the environmental impacts of our products at every stage.

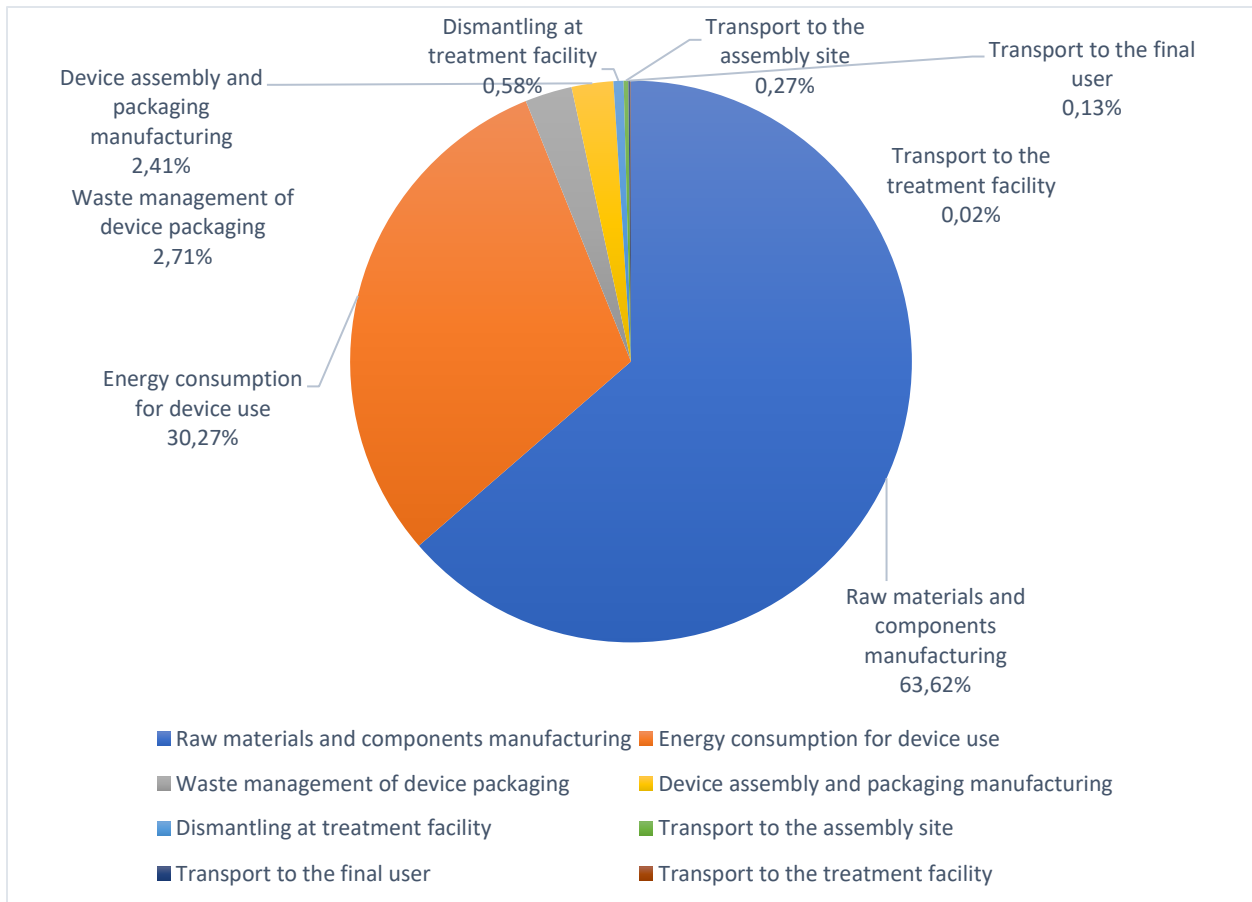
Lifetime (years)	Weight (kg)	Energy Demand (kWh) per year	Assembly Location
5	1.3	28	Canada

Data Quality Assessment and Uncertainty Explanation for the LCA of CIARA's Devices

Criterion	Evaluation
Geographical representativeness	<p>The primary data represents the life cycle stages of the device in East-Asia and Canada. The secondary data was selected in such a way that their geographical context is as representative as possible.</p> <p>Regarding the processes related to resource consumption for device assembly in Quebec (Canada), data representative of the Quebec context was used.</p> <p>As for the processes related to electricity consumption during device use, data representing the context of each Canadian province was used. The processes associated with packaging manufacturing; the best available data was used following this order of priority: Quebec (Canada)/World.</p> <p>In the case of processes for component and material manufacturing taking place in Est-Asia, data representative of the global market was used. The data is considered to have a good geographical representativeness.</p>
Temporal representativeness	<p>Life cycle inventory data is taken from the ecoinvent version 3.7 (2020) database. This version is based on version 3.0 which has been released annually since 2013. It should be noted that some version 3.0 data comes from earlier versions (1991-2012).</p> <p>The device components are based on secondary data dating from 2002 which the most recent available data in ecoinvent 3.7 (more than 10 years). Thus, the data is considered average in terms of temporal representativeness.</p>

Technological representativeness	<p>The primary data is representative of the technologies used during the device’s life cycle. The secondary data was selected to represent these technologies as accurately as possible. This included the energy mix, the device’s components and transport.</p> <p>The secondary data used to model the components are based on those of the “computer production, desktop”, this process dates from 2002 and is the most recent data on computer components available in ecoinvent 3.7 (more than 10 years). Because of this, the secondary data is deemed to have an average technological representativeness.</p>
Completeness	<p>All processes whose mass and energy flow are above the cut-off threshold (1%) were included in the LCA.</p>

Product Carbon Footprint Information






Contribution of each life cycle stage to GWP impacts- Astro PB62

Contribution of each life cycle stage and process to the GWP impacts of Astro PB6

Process	Contribution	Amount	Unit
Astro PB62	100.00%	113.28	kg CO2 eq
Raw materials and components manufacturing- Astro PB62	63.62%	72.06	kg CO2 eq
printed wiring board production, mounted mainboard, desktop computer, Pb containing	41.43%	46.93	kg CO2 eq
market for integrated circuit, memory type	10.22%	11.58	kg CO2 eq
market for power supply unit, for desktop computer	05.95%	6.73	kg CO2 eq
aluminium production, primary, cast alloy slab from continuous casting	02.35%	2.65	kg CO2 eq
market for steel, unalloyed	00.88%	0.99	kg CO2 eq
corrugated board box production	00.63%	0.70	kg CO2 eq
polyethylene production, linear low density, granulate	00.48%	0.54	kg CO2 eq
acrylonitrile-butadiene-styrene copolymer production	00.44%	0.49	kg CO2 eq
metal working, average for aluminium product manufacturing	00.43%	0.48	kg CO2 eq
polymer foaming	00.20%	0.23	kg CO2 eq
hard disk drive production, for desktop computer	00.18%	0.19	kg CO2 eq
cable, connector for computer, without plugs	00.16%	0.18	kg CO2 eq
EUR-flat pallet production	00.10%	0.11	kg CO2 eq
injection moulding	00.09%	0.10	kg CO2 eq
hot rolling, steel	00.05%	0.05	kg CO2 eq
plug production, inlet and outlet, for computer cable	00.01%	0.016	kg CO2 eq
polypropylene, granulate	00.01%	0.009	kg CO2 eq
polyethylene production, high density, granulate	00.01%	0.005	kg CO2 eq
treatment of non-Fe-Co-metals, from used Li-ion battery, pyrometallurgical processing	00.00%	0.00000	kg CO2 eq
Energy Consumption for device use	30.27%	34.28	kg CO2 eq
electricity, low voltage	30.27%	34.28	kg CO2 eq
Waste management of device packaging	02.71%	3.07	kg CO2 eq
market for waste paperboard	02.50%	2.83	kg CO2 eq
market for waste plastic, mixture	00.17%	0.19	kg CO2 eq
transport, freight, lorry 16-32 metric ton, EURO4	00.03%	0.03	kg CO2 eq
waste wood, untreated	00.01%	0.010	kg CO2 eq
Device assembly and packaging manufacturing	02.40%	2.72	kg CO2 eq
electricity, low voltage	00.66%	0.74	kg CO2 eq
corrugated board box production	00.63%	0.70	kg CO2 eq
polyethylene production, linear low density, granulate	00.48%	0.54	kg CO2 eq
polymer foaming	00.20%	0.22	kg CO2 eq

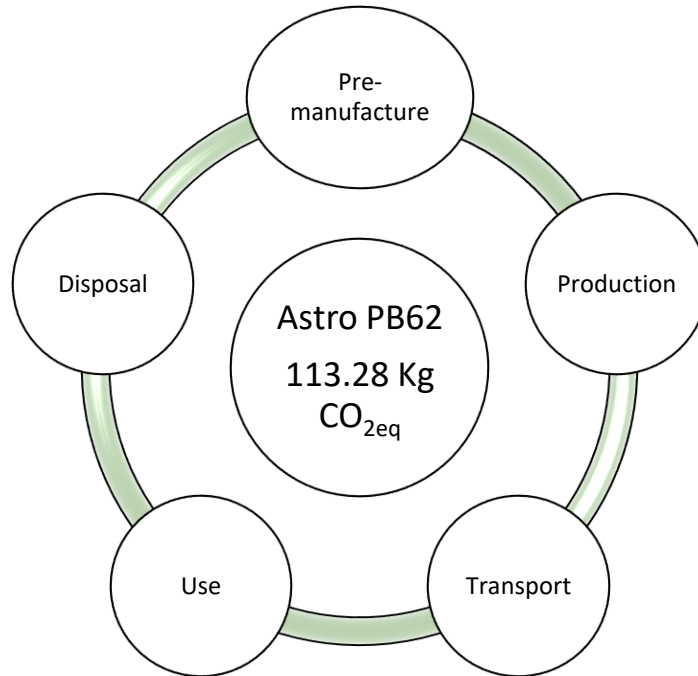
heat and power co-generation, natural gas, conventional power plant, 100MW electrical	00.15%	0.16	kg CO2 eq
EUR-flat pallet production	00.10%	0.111	kg CO2 eq
transport, passenger car, large size, petrol, EURO 4	00.10%	0.11	kg CO2 eq
machine operation, diesel, >= 74.57 kW, generators	00.05%	0.058	kg CO2 eq
tap water	00.04%	0.042	kg CO2 eq
transport, freight, lorry 16-32 metric ton, EURO4	00.01%	0.006	kg CO2 eq
Dismantling at manual treatment facility	00.58%	0.652	kg CO2 eq
used desktop computer	00.58%	0.652	kg CO2 eq
Transport to the assembly site	00.27%	0.311	kg CO2 eq
transport, freight, sea, container ship	00.26%	0.299	kg CO2 eq
transport, freight, lorry 16-32 metric ton, EURO4	00.01%	0.011	kg CO2 eq
Transport to the final user	00.13%	0.146	kg CO2 eq
transport, freight, lorry 16-32 metric ton, EURO4	00.13%	0.146	kg CO2 eq
Transport to manual treatment facility	00.02%	0.024	kg CO2 eq
transport, freight, lorry 16-32 metric ton, EURO4	00.02%	0.024	kg CO2 eq

Greenhouse Gas Equivalencies

		
284 Miles driven by an average passenger vehicle	1.86 tree seedlings grown for 10 years 0.139 acres of U.S. forests in one year	4.28 Incandescent lamps switched to LEDs

At CIARA, we commit to improve our environmental footprint and help contribute to a more sustainable world.

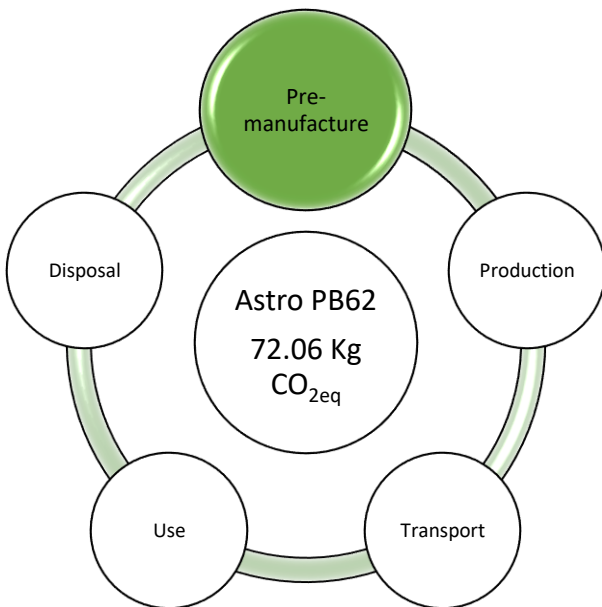
We commit to continually reduce the environmental impact of our products at every stage.



Astro PB62 life cycle

Pre manufacture

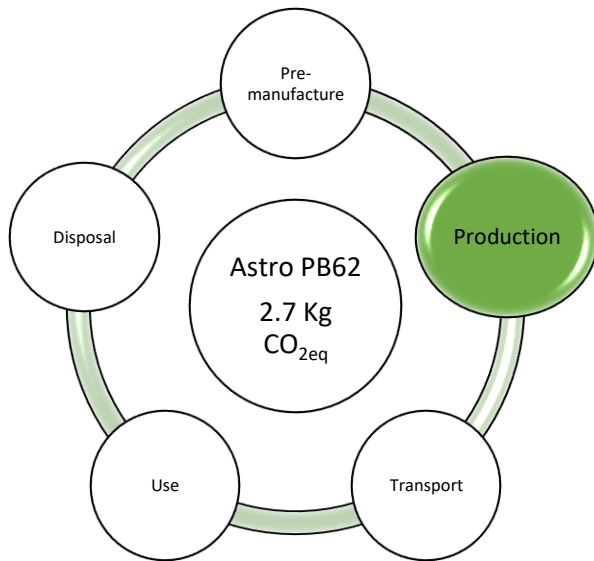
CIARA is committed to the responsible sourcing of minerals, suppliers must conduct their business in accordance with the CIARA RBA Supplier Code of Conduct and be compliant with applicable laws and regulations regarding conflict minerals.



Since some of our suppliers use minerals from multiple sources worldwide, we seek to ensure that they conform with our ethics and Code of Conduct.

The use of natural resources, including water, fossil fuels, minerals and virgin forest products has to be maintained by practices such as modifying production, maintenance and facility processes, materials substitution, re-use, conservation, recycling or other means.

Production

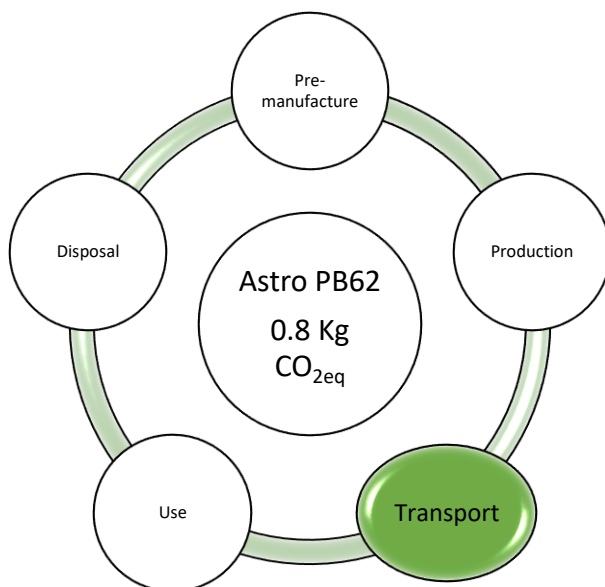


We manufacture eco-friendly products and use clean renewable energy and power efficient facilities. CIARA is a member of Hydro-Québec Energy Saver's Circle. Through this membership we aspire to monitor and share our energy efficiency initiatives. At CIARA, we recycle more than 90% of all the used materials during the manufacturing process. In addition, we replace most of the foam inserts with pulp and paper products and reused packaging materials. Memory, CPU, HDD, and SSD are transformed into the plastic pellets to support our recycling initiatives. We now use a fleet of Automated Guided Vehicle Systems to manage IT components in production. These vehicles contribute to our sustainable growth since they resist to contamination and operate emission and noise free.

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Transport

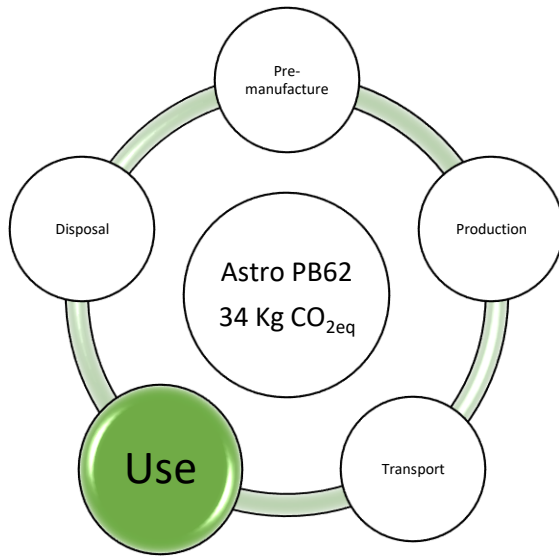
Transportation footprint is highly considered in production phase as well as in the delivery of finished products to our clients.



To decrease our transportation footprint, we reduced the number of our transportation vehicles by 70% between 2018 and 2021.

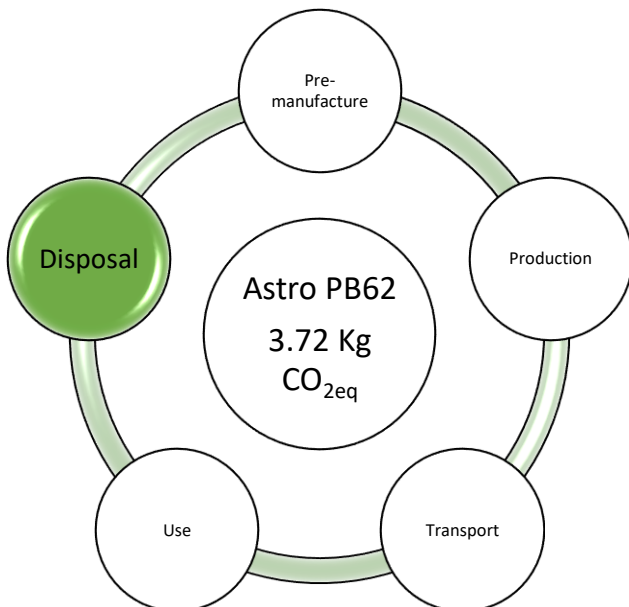
At Ciara, we ensure that our vehicles and other transportation means conform to applicable laws and regulations. Therefore, we always look for the alternatives such as using renewable energies, less vehicles and encouraging the share of the renewable energy.

Use



At this stage, the impact is calculated for devices that are used for an average of 6 hours a day. The energy-saving design of our product meets the requirements of the latest Energy Star Standard (ESS) 8.0 since the average energy consumption is lower than the ESS. At Ciara, we design our products to be long lasting, safe and compliant with Canadian Electrical Code and all other applicable regulation.

Disposal



We consider that the devices are dismantled and recycled but the environmental benefits of recycling were not considered in the system boundary. Landfilling is considered for the packaging.

Carbon footprint Targets

At CIARA, we continue making progress to reduce our product's contribution to climate change by enhancing our use of recycled materials and renewable energy. CIARA is committed to use carbon life cycle analysis to detect opportunities in order to reduce our product greenhouse gas emissions. We work with recyclers to define adequate disposal treatment methods and recycling. To improve our packaging, we aim to eliminate plastics and increase the use of recycled materials. Our products are designed to be energy efficient and more durable.