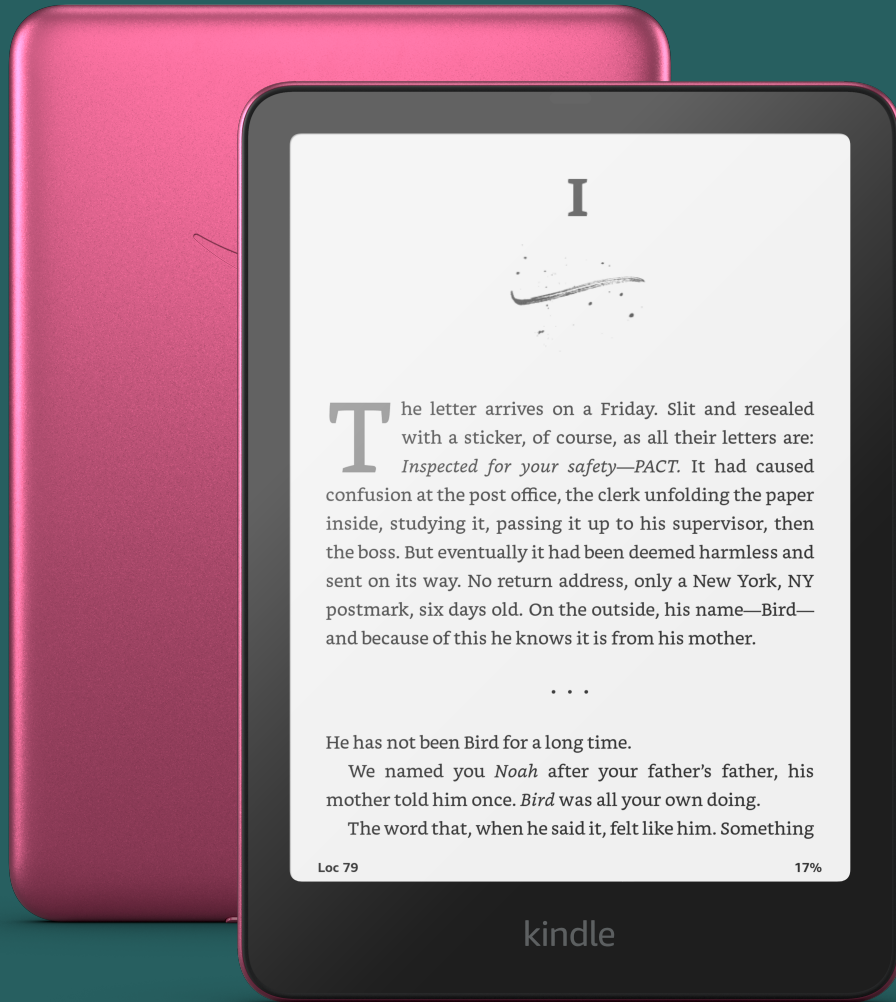


Product Sustainability Fact Sheet



Kindle Paperwhite (16GB) 12th Generation

Updated October 2024 - for US only

Designed for Sustainability

We're working to make Amazon devices more sustainable—from how we build them to how customers use and eventually retire them.



Carbon Footprint

35kg CO₂e total carbon emissions

Recycled Materials

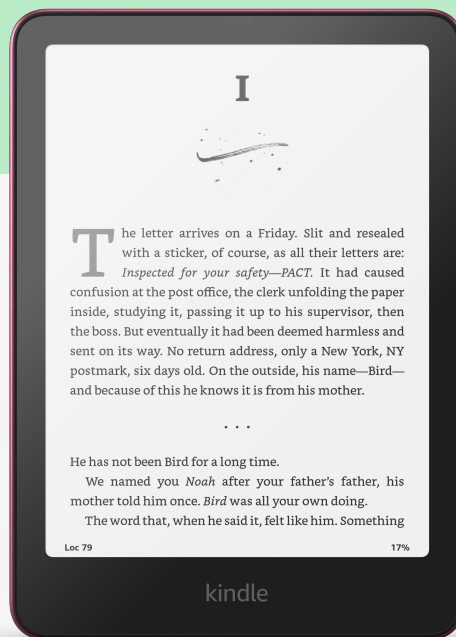
Made from **29% recycled materials**. The internal structural frame is made from **90% recycled magnesium**.

Packaging

All new 100% recyclable packaging (shipping packaging not included).

Trade-in and Recycle

Built to last. But when you're ready, you can trade-in or recycle your devices. Explore [Amazon Second Chance](#).



Figures apply to Kindle Paperwhite (16GB) 12th Generation, not including any other versions or any bundled accessories or devices. We update the carbon footprint when we discover new information that increases the estimated carbon footprint of a device by more than 10%.



This device is a [Climate Pledge Friendly](#) product. We partner with trusted third-party certifiers and create our own certifications like [Compact by Design](#) and [Pre-owned Certified](#) to highlight products that meet sustainability standards.



The product carbon footprint of this device has been certified by SCS Global Services¹.

Life Cycle

We consider sustainability in every stage of a device's life cycle—from sourcing raw materials to end-of-life.

Kindle Paperwhite (16GB) 12th Generation total life cycle carbon emissions: 35 kg CO₂e

01 Materials and Manufacturing

96%

02 Transportation

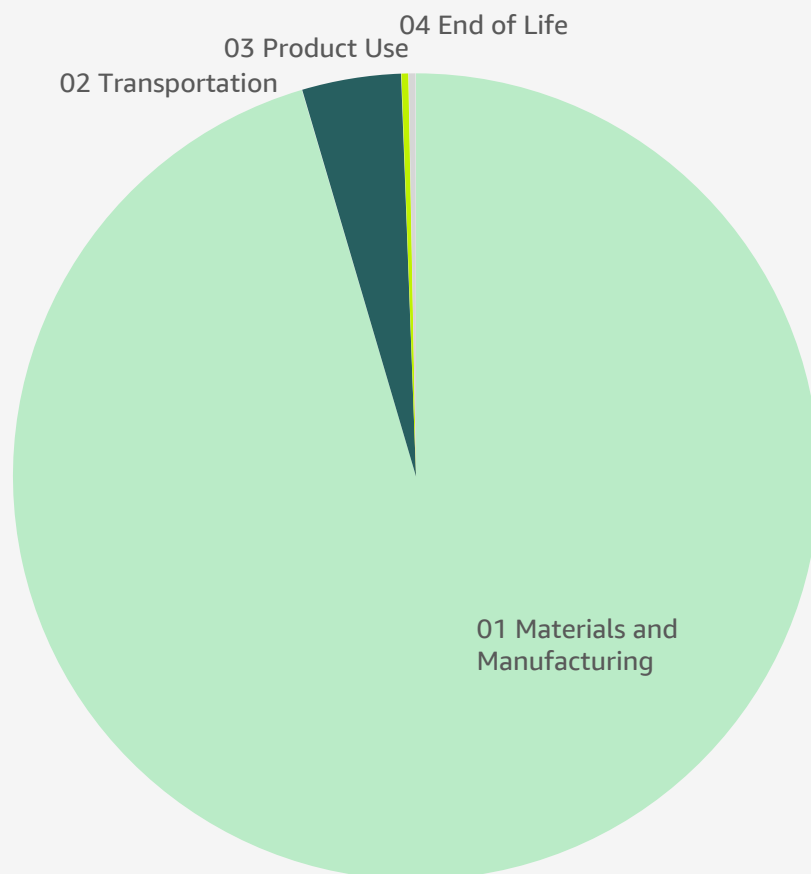
4%

03 Product Use

<1%

04 End-of-Life

<1%



Life Cycle Assessment: A methodology to assess the environmental impact (e.g., carbon emissions) associated with life cycle stages of a product—from raw material extraction and processing, through production, use, and disposal.

This product's biogenic carbon emissions of 0.034 kg CO₂e are included in the total footprint calculation. The total biogenic carbon content in this product is 0.008 kg C. Percentage values may not add up to 100% due to rounding.

Materials and Manufacturing

We account for the extraction, production, and transportation of raw materials, as well as the manufacturing, transporting, and assembling of all parts.

Recycled Materials

This device is made from **29% recycled materials**. The internal structural frame is made from **90% recycled magnesium**. The plastic in this device is made from **58% post consumer recycled plastic**. We incorporate recycled fabrics, plastics, and metals into many new Amazon devices, giving new life to materials.

Recyclable Packaging

This device has **100% recyclable packaging**. 99% of this device's packaging is made of wood fiber-based materials from responsibly managed forests or recycled sources.

Chemical Safety

Through our partnership with ChemFORWARD, we're collaborating with industry peers to proactively identify chemicals of concern and safer alternatives ahead of regulations.

Suppliers

All of our assembly sites for this product have achieved UL Zero Waste to Landfill Platinum certification. This means our suppliers handle waste in environmentally responsible ways, diverting more than 90% of their facility's waste from the landfill through methods other than waste to energy.

We engage suppliers who manufacture our devices or their components—particularly final assembly sites, semiconductors, printed circuit boards, displays, batteries, and accessories—and encourage them to increase renewable energy use and reduce manufacturing emissions. As of the end of 2023, we have received commitments from 49 device suppliers to work with us on decarbonization, up from 28 suppliers in 2022. We also helped 21 suppliers develop renewable energy plans for Amazon Devices production and assembly. We are continuing to expand this program in 2024 and beyond.



Transportation

We account for an average inbound and outbound trip that is representative of an average device or accessory. Inbound trip includes transporting the product from final assembly to Amazon warehouses while outbound trip includes transporting the product from warehouses to the customer.

Amazon Commitment

Delivering for our global customers requires Amazon to rely on a variety of transportation solutions for long and short distances. Over the lifetime of the device, Amazon will ship **at least 60%*** of the global inbound volume of the Kindle Paperwhite (16GB) 12th Generation via non-air modes of transportation.

*Estimated based on last 5 years average of a similar product; includes transportation from manufacturers and suppliers into Amazon warehouse only.

Diversifying Transportation Modes

Decarbonizing our transportation network is a key part of meeting The Climate Pledge by 2040. According to our science model, on average, ocean shipping emissions are approximately 95% lower than air transport emissions.

Since 2020, we've reduced carbon emissions from transportation of our devices by 71%. We've done this by prioritizing transportation via ocean and modes that are less carbon intensive than air like rail and road.



Product Use

We determine the expected energy consumption of a device over its lifetime and calculate the carbon emissions associated with the use of our devices.

Low Power Display

Our electronic ink display is energy efficient, consuming power only when the image on the screen changes. We use “bi-stability” to make our e-readers more energy efficient than regular displays.



End-of-Life

To model end-of-life emissions, we estimate the ratio of end products that are sent to each disposal pathway including recycling, combustion, and landfill. We also account for any emissions required to transport and/or treat the materials.

Durability

We ensure that our devices are built to last by putting them through dozens of reliability tests to replicate everyday situations such as drops, tumbles, spills, power cycles and other wear and tear. We also release over-the-air software updates for our customers' devices so they don't need to replace them as often.

Trade-in & Recycling

We make it easy for you to retire your devices. Using Amazon Trade-In, you can trade-in your old devices for a gift card. Your retired devices will then be either refurbished and re-sold, or recycled.



Methodology

Our approach to measuring a product's carbon footprint?

To meet [The Climate Pledge](#) goal to be net-zero carbon by 2040, we measure and estimate this product's carbon footprint, and identify opportunities to reduce its carbon emissions. Our life cycle assessment ("LCA") models align with internationally recognized standards, like the Greenhouse Gas ("GHG") Protocol Product Life Cycle Accounting and Reporting Standard² and International Standards Organization ("ISO") 14067³. Our methodology and product carbon footprint results are reviewed by the Carbon Trust with reasonable assurance. All carbon footprint numbers are estimates and we continuously improve our methodology as the science and data available to us evolve.

What's in an Amazon device's product carbon footprint?

We calculate this product's carbon footprint throughout its life cycle stages, including materials and manufacturing, transportation, use, and end-of-life. The life-cycle impacts are estimated based on the Intergovernmental Panel on Climate Change ("IPCC") 2021 Global Warming Potential for a 100-year timeframe ("GWP100") in CO₂ equivalency factors ("CO₂e")⁴. Two carbon footprint metrics are considered: 1) the total carbon emissions across all life cycle stages of one device or accessory (in kilograms of carbon dioxide equivalent, or kg CO₂e), and 2) the average carbon emissions per year used of the estimated device lifetime, in kg CO₂e/use-year.

Materials and Manufacturing: We calculate the carbon emissions from material and manufacturing based on the list of raw materials and components to manufacture a product, namely the bill of materials. We account for the emissions from the extraction, production, and transportation of raw materials, as well as the manufacturing, transporting, and assembling of all parts. For certain components and materials, we may collect primary data from our suppliers to supplement our industry average data, collected from a mix of commercially and publicly available LCA databases.

Transportation: We estimate the emissions of transporting the product from final assembly to our end customer using actual or best estimated average transportation distances and transportation modes for each device or accessory.

Use: We calculate the emissions associated with the use (i.e., electricity consumption) of this product by multiplying the total electricity consumption over a device's estimated lifetime with the carbon emissions from the generation of 1 kWh electricity (the grid emission factor). The total energy consumption of a device is based on the average customer's power consumption and estimated time spent in various modes of operation like playing music, playing video, idle, and low power mode. A specific customer may have a higher or lower use phase footprint associated with their device depending on their specific usage patterns.

We use country-specific grid emission factors to account for the regional variations in electricity grid mix. [Learn more](#) about how Amazon plans to decarbonize and neutralize the use phase of our connected devices by 2040.

End-of-Life: For end-of-life emissions, we account for any emissions required to transport and/or treat the materials destined to each disposal pathway (e.g., recycling, combustion, landfill).

How do we use the product carbon footprint?

The footprint helps us identify carbon reduction opportunities across this product's various life cycle stages. In addition, we use it to communicate our carbon reduction progress over time—this is included in the calculation of Amazon's corporate carbon footprint. [Learn more](#) about Amazon corporate carbon footprint methodology.

How often do we update a product's carbon footprint?

After we launch a new product, we track and audit the carbon emissions of all life cycle phases of our devices. We update our product sustainability fact sheets when the estimated carbon footprint of a device increases by more than 10% or due to new information that changes our model inputs. These changes that are within Amazon's control include adjustments to the product design, changes in product energy usage, and updates to transportation data. To make sure that we compare our new products fairly, we recalculate the footprint of their comparison products, incorporating updates in our methodology and emission factors. This report serves as an informational guide and should not be relied upon for product comparisons.

[Learn more](#) about our product carbon footprint methodology and limitations in our full methodology document.

Definitions:

Biogenic carbon emissions: Carbon released as carbon dioxide or methane from combustion or decomposition of biomass or bio-based products.

Life Cycle Assessment: A methodology to assess the environmental impact (e.g., carbon emissions) associated with life cycle stages of a product—from raw material extraction and processing, through production, use, and disposal.

Endnotes

¹SCS Global Services Certification Number: SCS-CFP-10304; LCA data version August 23, 2024 published by SCS Global Services.

²Greenhouse Gas ("GHG") Protocol Product Life Cycle Accounting and Reporting Standard: <https://ghgprotocol.org/product-standard> published by the Greenhouse Gas Protocol

³International Standards Organization ("ISO") 14067:2018 Greenhouse gases—Carbon footprint of products—Requirements and guidelines for quantification: <https://www.iso.org/standard/71206.html> published by International Standards Organization

⁴Intergovernmental Panel on Climate Change ("IPCC") AR6: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change: https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf published by the Intergovernmental Panel on Climate Change

