iPad

Environmental Report



Models

Wi-Fi: MC705, MC706, MC707, MD328, MD329, MD330

Wi-Fi + Cellular: MC733, MC744, MC756, MD363, MD364, MD365, MD366, MD367, MD368, MD369, MD370, MD371

Date introduced

March 7, 2012

Environmental Status Report

iPad is designed with the following features to reduce environmental impact:

- Mercury-free LED-backlit display
- Arsenic-free display glass
- BFR-free
- PVC-free
- Recyclable aluminum enclosure
- Power adapter that outperforms strictest global energy-efficiency standards

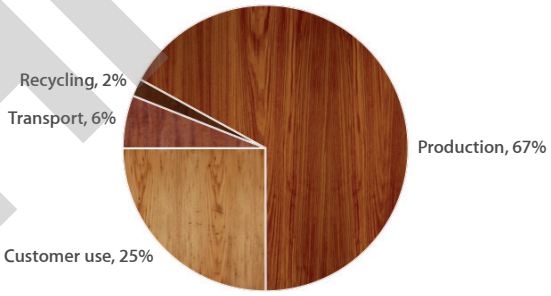
Apple and the Environment

Apple believes that improving the environmental performance of our business starts with our products. The careful environmental management of our products throughout their life cycles includes controlling the quantity and types of materials used in their manufacture, improving their energy efficiency, and designing them for better recyclability. The information below details the environmental performance of iPad (third generation) as it relates to climate change, energy efficiency, material efficiency, and restricted substances.

Climate Change

Greenhouse gas emissions have an impact on the planet's balance of land, ocean, and air temperatures. Most of Apple's corporate greenhouse gas emissions come from the production, transport, use, and recycling of its products. Apple seeks to minimize greenhouse gas emissions by setting stringent design-related goals for material and energy efficiency. The chart below provides the estimated life-cycle greenhouse gas emissions for iPad.

Greenhouse Gas Emissions for iPad (Wi-Fi + Cellular)



Total greenhouse gas emissions: 180 kg CO_2e

Energy Efficiency

iPad uses power-efficient components and software that intelligently manage power consumption. In addition, the iPad 10W USB Power Adapter outperforms the stringent requirements of the ENERGY STAR specification for external power supplies. The following table details the power consumed by iPad in different use modes.

Power Consumption for iPad (Wi-Fi + Cellular)

Mode	100V	115V	230V
Sleep	0.65W	0.65W	0.70W
Idle—Display on	5.26W	5.26W	5.46W
Power adapter, no-load	0.07W	0.07W	0.09W
Power adapter efficiency	80.9%	80.8%	79.9%

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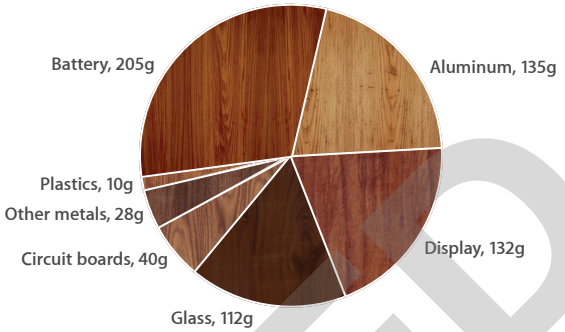
Battery chemistry

- Lithium-ion polymer, 42.5 Whr
- Free of lead, cadmium, and mercury

Material Efficiency

Apple's ultracompact product and packaging designs lead the industry in material efficiency. Reducing the material footprint of a product helps maximize shipping efficiency. It also helps reduce energy consumed during production and material waste generated at the end of the product's life. iPad is made of aluminum and other materials highly desired by recyclers. The chart below details the materials used for iPad.

Material Use for iPad (Wi-Fi + Cellular)





iPad retail packaging consumes 13 percent less material, allowing up to 52 percent more units than the original iPad to fit in each airline shipping container.

Packaging

The packaging for iPad is highly recyclable. It uses corrugated cardboard made from a minimum of 28 percent post-consumer recycled content and molded fiber made entirely from recycled content. In addition, its packaging is extremely material efficient, allowing up to 52 percent more units to be transported in an airline shipping container compared with the original iPad. The following table details the materials used in iPad packaging.

Packaging Breakdown for iPad (U.S. Configurations)

Material	Retail box	Retail and shipping box
Paper (corrugate, molded fiber)	212g	445g
High-impact polystyrene	70g	70g
Other plastics	9g	9g

Restricted Substances

Apple has long taken a leadership role in restricting harmful substances from its products and packaging. As part of this strategy, all Apple products comply with the strict European Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, also known as the RoHS Directive. Examples of materials restricted by RoHS include lead, mercury, cadmium, hexavalent chromium, and the brominated flame retardants (BFRs) PBB and PBDE. iPad goes even further than the requirements of the RoHS Directive by incorporating the following more aggressive restrictions:

- Mercury-free LED-backlit display
- Arsenic-free display glass
- BFR-free
- Polyvinyl chloride (PVC)–free

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Recycling

Through ultra-efficient design and the use of highly recyclable materials, Apple has minimized material waste at the product's end of life. In addition, Apple offers and participates in various product take-back and recycling programs in 95 percent of the regions where Apple products are sold. All products are processed in the country or region in which they are collected. For more information on how to take advantage of these programs, visit www.apple.com/recycling.

Definitions

Greenhouse gas emissions: Estimated emissions are calculated in accordance with guidelines and requirements as specified by ISO 14040 and ISO 14044. Calculation includes emissions from the following life-cycle phases contributing to Global Warming Potential (GWP 100 years) in CO_2 equivalency factors (CO_2e):

- **Production:** Includes the extraction, production, and transport of raw materials, as well as the manufacture of the product and product packaging.
- **Transport:** Includes air and sea transportation of the finished product and its associated packaging from the manufacturing site to continental distribution hubs. Transport of products from distribution hubs to the end customer is not included.
- **Customer use:** End-user power consumption assumes a three-year period. Product use scenarios are modeled on data that reflects intensive daily use of the product. Geographic differences in the power grid mix have been accounted for at a continental level.
- **Recycling:** Includes transportation from collection hubs to recycling centers, and the energy used in mechanical separation and shredding of parts.

Energy-efficiency terms: The energy-efficiency values for the iPad 10W USB Power Adapter are based on the ENERGY STAR Program Requirements for Single Voltage External AC-DC and AC-AC Power Supplies Version 2.0. For more information, visit www.energystar.gov.

- **Sleep:** Low power state that is entered automatically after two minutes of inactivity (default), or by pressing the Sleep/Wake button. Tested with a fully charged battery and powered by the iPad 10W USB Power Adapter. Connected to Wi-Fi and cellular networks. All other settings were left in their default states.
- **Idle—Display on:** iPad is on and at the Home screen. Tested with a fully charged battery and powered by the iPad 10W USB Power Adapter. Display brightness was left at its default state, except Auto-Brightness was turned off. Connected to Wi-Fi and cellular networks. All other settings were left in their default states.
- **Power adapter, no-load:** Condition in which the iPad 10W USB Power Adapter is connected to AC power, but not connected to iPad.
- **Power adapter efficiency:** Average of the iPad 10W USB Power Adapter measured efficiency when tested at 100 percent, 75 percent, 50 percent, and 25 percent of the power adapter's rated output current.

Restricted substances: Apple defines a material as BFR-free and PVC-free if it contains less than 900 parts per million (ppm) of bromine and of chlorine.

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