



iPhone 7 Environmental Report



Date introduced
September 7, 2016

Environmental Status Report

iPhone 7 is designed with the following features to reduce environmental impact:

- Arsenic-free display glass
- Mercury-free LED-backlit display
- Brominated flame retardant-free
- PVC-free
- Beryllium-free
- Recyclable aluminum enclosure
- Packaging fibers are made from sustainably managed forests, bamboo, and waste sugarcane

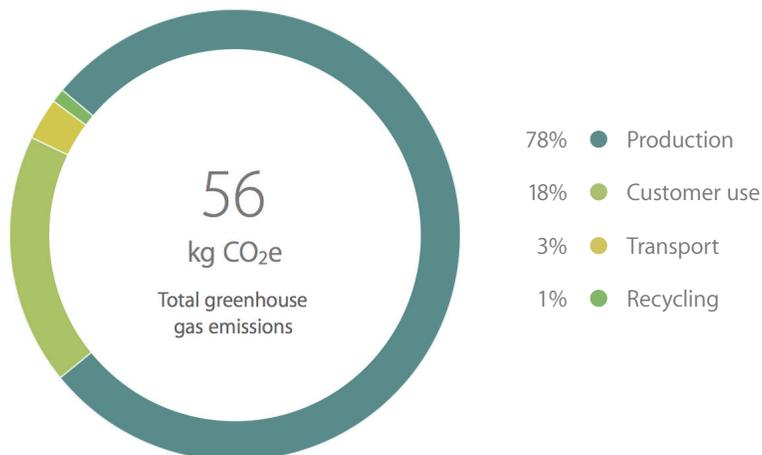
Apple and the Environment

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 iPhone 7 as it relates to climate change, energy efficiency, material efficiency, and restricted substances.¹

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. For example, by decreasing virgin aluminum use and increasing low-carbon aluminum manufacturing, the greenhouse gas emissions associated with the aluminum enclosure of iPhone 7 are 17 percent less than those of iPhone 6s and 60 percent less than those of iPhone 6. The chart below provides the estimated greenhouse gas emissions for iPhone 7 over its life cycle.²

Greenhouse Gas Emissions for iPhone 7—32GB model





Battery chemistry

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

Energy Efficiency

iPhone 7 uses power-efficient components and software that intelligently manages power consumption. The following table details the energy efficiency of the Apple USB Power Adapter.

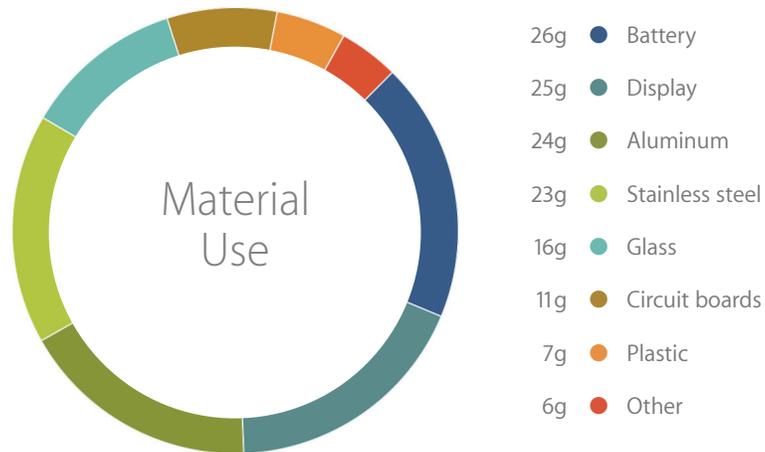
Energy Efficiency of the Apple USB Power Adapter

Mode	100V	115V	230V
Power adapter no-load	0.014W	0.014W	0.012W
Power adapter efficiency	74.3%	74.3%	73.1%

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. iPhone 7 is made of aluminum and other materials highly desired by recyclers. In addition, plastics used in the internal antenna are made with 35 percent post-consumer recycled content and plastics used in the display frame are made with 28 percent bio-based content. The chart below details the materials used in iPhone 7.³

Material Use for iPhone 7





U.S. retail packaging of iPhone 7 contains 84 percent less plastic than the previous-generation iPhone packaging and contains 60 percent recycled content. In addition, the packaging fibers are made from sustainably managed forests, bamboo, and waste sugarcane.

Packaging

The packaging for iPhone 7 is highly recyclable. Its retail box is made primarily from fiber-based materials originating from recycled content, agricultural by-products, or sustainably managed sources. In addition, the greenhouse gas emissions associated with the packaging of iPhone 7 are 26 percent less than those of iPhone 6s. The following table details the materials used in iPhone 7 packaging.¹

Packaging Breakdown for iPhone 7

Material	Retail box
Fiber (fiberboard, paperboard, non-wood fiber)	165g
Plastic film	5g

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. iPhone 7 goes even further than the requirements of the RoHS Directive by incorporating the following more aggressive restrictions:

- Arsenic-free display glass
- Mercury-free LED-backlit display
- BFR-free
- PVC-free
- Beryllium-free

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 99 percent of the countries 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 for the following life-cycle phases contributing to Global Warming Potential (GWP 100 years) in CO₂ equivalency factors (CO₂e):

- **Production:** Includes the extraction, production, and transportation of raw materials, as well as the manufacture, transport, and assembly of all parts and product packaging.
- **Transport:** Includes air and sea transportation of the finished product and its associated packaging from manufacturing site to regional distribution hubs. Transport of products from distribution hubs to end customer is modeled using average distances based on regional geography.
- **Customer use:** Apple conservatively assumes a three-year period for power use by first owners. Product use scenarios are based on historical customer use data for similar products. Geographic differences in the power grid mix have been accounted for at a regional 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 are based on the following conditions:

- **Power adapter no-load:** Condition in which the Apple USB Power Adapter with the Lightning to USB Cable (1m) is connected to AC power, but not connected to iPhone.
- **Power adapter efficiency:** Average of the Apple USB Power Adapter with the Lightning to USB Cable (1m) 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. Apple defines a material as beryllium-free if it contains less than 1000 parts per million (ppm) of beryllium. A complete list of Apple's restrictions on hazardous substances is available at www.apple.com/environment/answers.

1. Product evaluations based on U.S. configurations of iPhone 7 32GB.
2. Greenhouse gas emissions vary according to the configuration of iPhone 7. The following table details the estimated greenhouse gas emissions for U.S. configurations of iPhone 7 over its life cycle.

Configuration	Greenhouse Gas Emissions
iPhone 7 32GB	56kg CO ₂ e
iPhone 7 128GB	63kg CO ₂ e
iPhone 7 256GB	75kg CO ₂ e

3. Excludes Apple Lightning to USB Cable and Apple USB Power Adapter. Mass will vary by configuration.

© 2016 Apple Inc. All rights reserved.