



12-inch MacBook Environmental Report





Models
MLH72, MLHA2, MLHE2, MMGL2,
MLH82, MLHC2, MLHF2, MMGM2
Date introduced April 19, 2016

Environmental Status Report

The 12-inch MacBook 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
- Keyboard hinge mechanism composed of bio-based material

 Meets ENERGY STAR®
Version 6.1 requirements

 Achieves a Gold rating
from EPEAT²

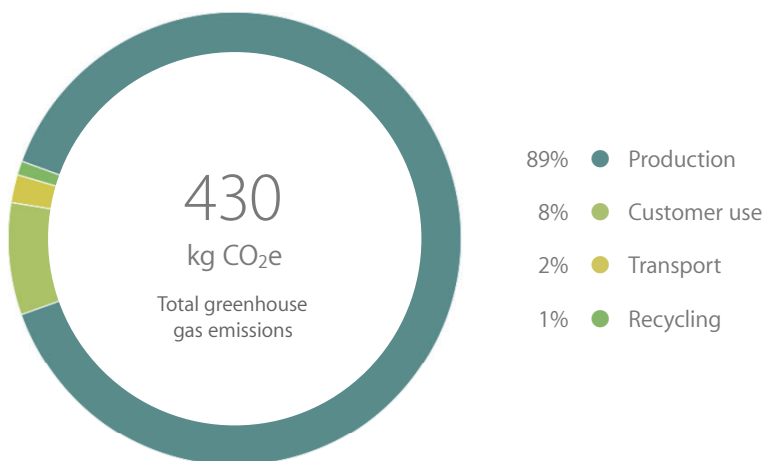
Apple and the Environment

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 the 12-inch MacBook 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. The chart below provides the estimated greenhouse gas emissions for the 12-inch MacBook over its life cycle.

Greenhouse Gas Emissions for 12-inch MacBook





Battery chemistry

- Lithium-ion polymer, 41.41 Whr
- Free of lead, cadmium, and mercury

The 12-inch MacBook consumes 83 percent less energy than the limit for the ENERGY STAR Program Requirements for Computers Version 6.1.

Energy Efficiency

Because one of the largest portions of product-related greenhouse gas emissions results from actual use, energy efficiency is a key part of each product’s design. Apple products use power-efficient components and software that can intelligently power them down during periods of inactivity. The result is that MacBook is energy efficient right out of the box. The 12-inch MacBook uses less than 0.5W in Sleep—the lowest of any Mac.

The 12-inch MacBook outperforms the stringent requirements of the ENERGY STAR Program Requirements for Computers Version 6.1. The following table details power consumed in different use modes.

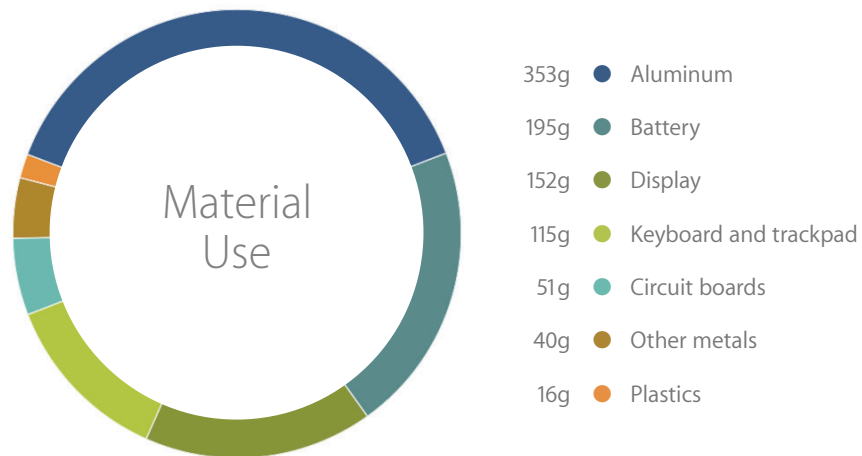
Power Consumption for 12-inch MacBook

Mode	100V	115V	230V
Off	0.11W	0.11W	0.14W
Sleep	0.32W	0.32W	0.36W
Idle—Display on	5.54W	5.54W	5.66W
Power adapter, no-load	0.038W	0.025W	0.038W
Power adapter efficiency	87.4%	87.7%	87.0%

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. Waste is further minimized through the use of batteries that last up to three times longer than typical notebook batteries. The 12-inch MacBook enclosure is made of aluminum, a material highly desired by recyclers. In addition, the keyboard hinge mechanism is made from plastic containing 67 percent bio-based content, which reduces dependence on petroleum-based plastics. The chart below details the materials used in this model.

Material Use for 12-inch MacBook





The 12-inch MacBook packaging is extremely material efficient and contains over 70 percent recycled content.

Packaging

The packaging for the 12-inch MacBook uses corrugated cardboard made from over 70 percent recycled content. In addition, the retail box contains over 30 percent recycled content. The following table details the materials used in its packaging.

Packaging Breakdown for 12-inch MacBook (U.S. Configurations)

Material	Retail box	Retail and shipping box
Paper (corrugate, paperboard)	255g	625g
High-impact polystyrene	110g	110g
Other plastics	12g	12g

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. The 12-inch MacBook 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
- Beryllium-free
- PVC-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. Apple also operates or participates in recycling programs in 99 percent of the countries where we sell our products. For more information on how to take advantage of these programs, visit www.apple.com/recycling.

Definitions

Electronic Product Environmental Assessment Tool (EPEAT): A program that ranks computers and