



Mac mini Environmental Report



Models MGEM2, MGEN2,
MGEQ2

Date introduced
October 16, 2014

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 Mac mini 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 Mac mini over its life cycle.

Environmental Status Report

Mac mini is designed with the following features to reduce environmental impact:

- Brominated flame retardant-free
- PVC-free²
- Recyclable aluminum enclosure
- Energy Efficient Ethernet enabled³

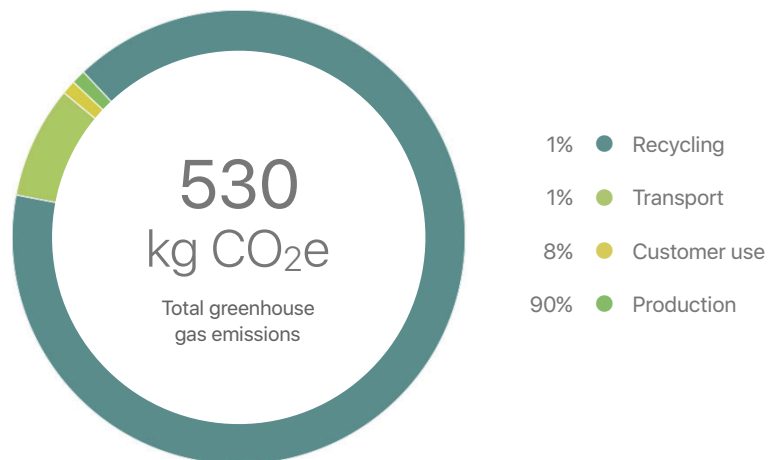


Meets ENERGY STAR[®] requirements



Achieves a Gold rating from EPEAT⁴

Greenhouse Gas Emissions for Mac mini



Energy Efficiency

Energy efficiency is a key part of each product’s design. The Mac mini uses lower power CPU and memory technologies as well as software that intelligently minimizes power consumption during periods of inactivity. As a result, the Mac Mini consumes 40 percent less power when in idle than the previous generation.

Mac mini outperforms the stringent requirements of the ENERGY STAR Program Requirements for Computers. The following table details the power consumed in different use modes.

Power Consumption for Mac mini

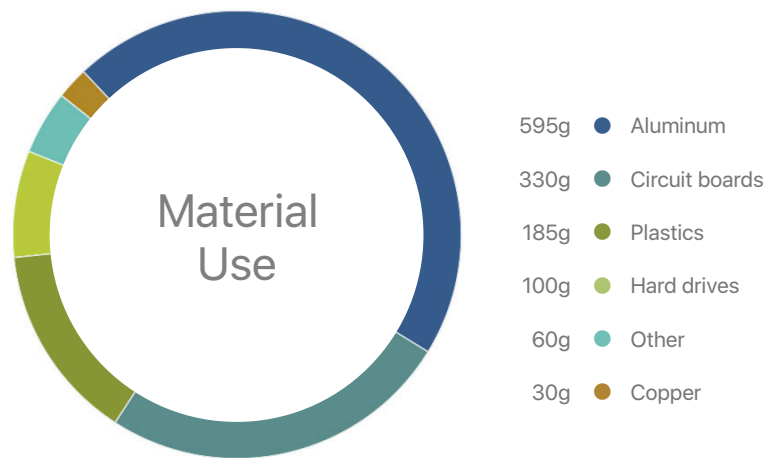
Mode	100V	115V	230V
Off	0.29W	0.29W	0.31W
Sleep	0.75W	0.71W	0.73W
Idle	5.9W	5.8W	5.5W
Power supply efficiency	89.0%	89.0%	89.0%

Material Efficiency

Mac mini beats ENERGY STAR requirements by 7 times, consuming 86 percent less energy than the limit allows.

Apple’s ultracompact product and packaging designs lead the industry in material efficiency. Mac mini uses 68 percent less plastic than the first generation as well as a compact and highly recyclable aluminum enclosure, making it one of the most material-efficient desktop computers available. The chart below details the materials used in Mac mini.⁵

Material Use for Mac mini





Mac mini retail packaging uses 35 percent less volume than the first-generation Mac mini and uses no expanded polystyrene (EPS).

Packaging

The corrugate and paperboard packaging for Mac mini is made from at least 50 percent recycled content, derived primarily from post-consumer sources. The following table details the materials used in its packaging.

Packaging Breakdown for Mac mini (U.S. Configurations)

Material	Retail box	Retail and shipping box
Paper (corrugate, paperboard, molded fiber)	214g	655g
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. Mac mini goes even further than the requirements of the RoHS Directive by incorporating the following more aggressive restrictions:

- BFR-free
- PVC-free internal cables
- PVC-free AC power cord available in all regions except India and South Korea



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

Electronic Product Environmental Assessment Tool (EPEAT): A program that ranks computers and displays based on environmental attributes in accordance with IEEE 1680.1-2009. For more information, visit www.epeat.net.

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 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 the manufacturing site to continental distribution hubs. Transport of products from distribution hubs to the end customer is not included.
- **Use:** User power consumption assumes a four-year period. Consumption patterns are modeled according to European Commission and U.S. Environmental Protection Agency computer eco-design studies. Geographic differences in the power grid mix have been accounted for at a continental level.
- **Recycling:** Includes transportation from collection hubs to recycling centers as well as the energy used in mechanical separation and shredding of parts.

Energy efficiency terms: The energy values in this report are based on the ENERGY STAR Program Requirements for Computers for desktop computers. For more information, visit www.energystar.gov.

- **Off:** Lowest power mode of the system when Mac mini is shut down. Also referred to as Standby.
- **Sleep:** Low power state that is entered automatically after 10 minutes of inactivity (default), or by selecting Sleep from the Apple menu. Wake-on-LAN is enabled (default).
- **Idle:** System is on and has completed loading OS X.
- **Power supply efficiency:** Average of the power supply's measured efficiency when tested at 100 percent, 50 percent, and 20 percent of the power supply's rated output power.

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.

1. Product evaluations based on U.S. configurations of model MGEM2.
2. PVC-free AC power cord available in all regions except India and South Korea.
3. Energy Efficient Ethernet requires a compliant switch to enter low-power mode.
4. Mac mini achieved a Gold rating from EPEAT in the United States and Canada.
5. Material mass includes AC cord. Product mass will vary by configuration and region.

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