21.5-inch iMac
Environmental Report

Model MMQA2

Date introduced
June 5, 2017

Environmental Status Report

The 21.5-inch iMac 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[2]
- Beryllium-free
- Recyclable aluminum enclosure
- Speaker enclosures made with 60 percent post-consumer recycled plastic
- Fan assembly made with 26 percent bio-based plastic

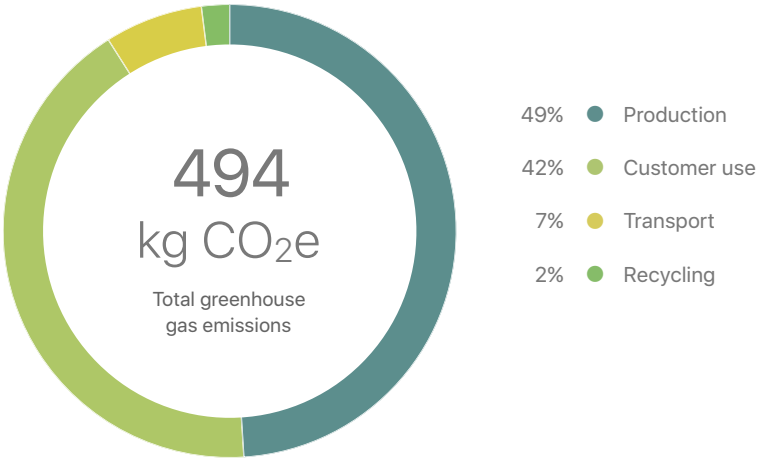
Apple and the Environment

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 21.5-inch iMac 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 our products. Apple seeks to minimize greenhouse gas emissions by designing products to be as energy efficient as possible, sourcing materials with lower-carbon emissions, and partnering with suppliers to procure clean energy to power their facilities. The chart below provides the estimated greenhouse gas emissions for the 21.5-inch iMac over its life cycle.

Greenhouse Gas Emissions for 21.5-inch iMac
2.3GHz processor with 1TB storage



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. The 21.5-inch iMac uses power-efficient components and software that can intelligently power them down during periods of inactivity. The result is that iMac is energy efficient right out of the box.

The following table details the power consumed by the 21.5-inch iMac in different use modes.

Power Consumption for 21.5-inch iMac

Mode	100V	115V	230V
Off	0.25W	0.25W	0.30W
Sleep	0.96W	1.00W	1.02W
Idle—Display on	19.4W	19.4W	19.8W
Power supply efficiency	90.0%	90.0%	90.0%

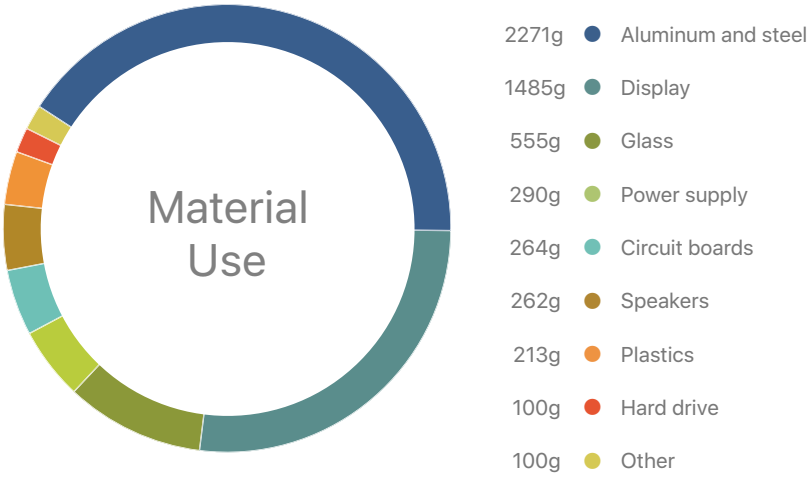
Material Efficiency

Continuous improvement of iMac design

The 21.5-inch iMac stand is made with 30 percent post-industrial recycled aluminum, the speaker enclosures are made with 60 percent post-consumer recycled plastic, and the fan assembly is made with 26 percent bio-based plastic.

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. The 21.5-inch iMac is made of aluminum and other materials highly desired by recyclers. The chart below details the materials used in the 21.5-inch iMac.[3]

Material Use for 21.5-inch iMac



The 21.5-inch iMac retail packaging consumes 53 percent less volume and weighs 35 percent less than the original 15-inch iMac packaging.

Packaging

The packaging for the 21.5-inch iMac is recyclable, and 100 percent of the wood fiber in its retail box is either recycled or sourced from responsibly managed forests. For example, the corrugated cardboard is made from a minimum of 33 percent post-consumer recycled content. In addition, its packaging is extremely material efficient, consuming 53 percent less volume than the original 15-inch iMac. The following table details the materials used in its packaging.[1]

Packaging Breakdown for 21.5-inch iMac

Material	Retail box	Retail and shipping box
Fiber (corrugate, paperboard)	1753g	2866g
Expanded polystyrene	431g	431g
Polypropylene (film, fabric)	60g	60g
Other plastics	23g	23g

Restricted Substances

Apple has long taken a leadership role in restricting harmful substances from our 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 21.5-inch iMac 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 internal cables
- PVC-free AC power cord available in all regions except India, South Korea, and Thailand
- 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 collection 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 CO_2 equivalency factors (CO_2e):

- **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 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 four-year period for power use by first owners. Product use scenarios are based on historical customer use data for similar products, collected anonymously. 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 values in this report are based on the ENERGY STAR Program Requirements for Computers. For more information, visit www.energystar.gov.

- **Off:** Lowest power mode of the system when iMac 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 for network access enabled.
- **Idle—Display on:** System is on and has completed loading macOS. Display brightness was set as defined by ENERGY STAR Program Requirements for Computers, and Auto-Brightness was turned off. Connected to Wi-Fi.
- **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. 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 Model MMQA2.

2. PVC-free AC power cord available in all regions except India, South Korea, and Thailand.

3. Excludes AC power cord. Mass will vary by configuration.