



Mac Pro

Environmental Report



Model MD770, MD771

Date introduced

June 11, 2012

Environmental Status Report



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

- Brominated flame retardant-free
- PVC-free¹
- Highly recyclable aluminum enclosure

Meets ENERGY STAR® Version 5.2 requirements²



Achieves a Gold rating from EPEAT³



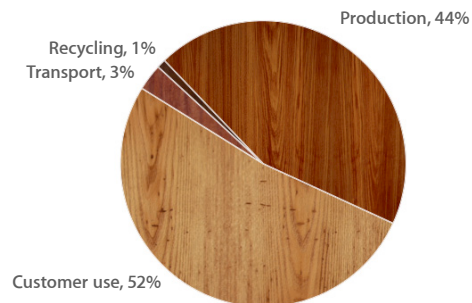
Apple and the Environment

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 type 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 Pro 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 greenhouse gas emissions for Mac Pro over its life cycle.

Greenhouse Gas Emissions for Mac Pro



Total greenhouse gas emissions: 1790 kg CO₂e

Energy Efficiency

Because the largest portion 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 intelligently powers them down during periods of inactivity. The result is that Mac Pro is energy efficient right out of the box.

Mac Pro outperforms the stringent requirements of the ENERGY STAR Program Requirements for Computers Version 5.2 and has been designed to be even more efficient than previous models, consuming 15 percent less power in idle mode than the original Mac Pro. The following table details the power consumed in different use modes.

Power Consumption for Mac Pro

Mode	100V	115V	230V
Off	0.61W	0.63W	0.77W
Sleep	7.50W	7.51W	7.60W
Idle	139W	138W	136W
Power supply efficiency	85%	85%	87%

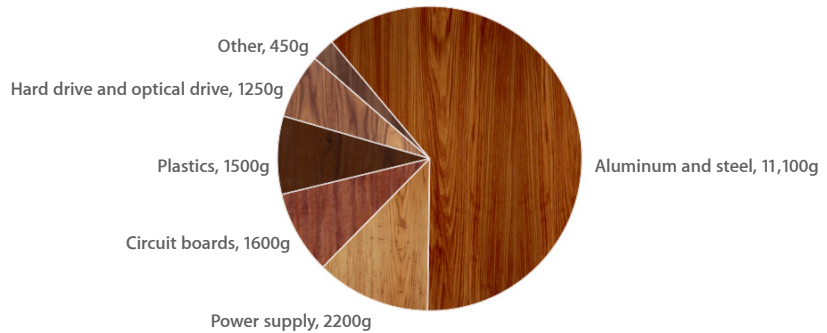
Material Efficiency

Through efficient design, Apple has created a product with fewer parts. Not only is Mac Pro easy for recyclers to disassemble, it's also designed to minimize the use of plastic and maximize highly recyclable aluminum and steel. The chart below details the materials used in Mac Pro.

Simplified design: Doing more with less

By designing the Mac Pro interior with a more efficient layout, Apple engineers were able to remove 6 feet of internal cables, resulting in improved recyclability and reduced material consumption.

Material Use for Mac Pro



Packaging

The packaging for Mac Pro is almost entirely recyclable and is made with a minimum of 35 percent post-consumer recycled content. The following table details the materials used in its packaging.

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

Material	Retail box	Retail and shipping box
Paper (corrugate, paperboard)	2700g	2700g
Expanded polystyrene	970g	970g
Other plastics	80g	80g

Restricted Substances

Apple has long taken the lead 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 Pro goes even further than the requirements of the RoHS Directive by incorporating the following more aggressive restrictions:

- BFR-free
- Polyvinyl chloride (PVC)-free internal cables
- PVC-free AC power cord in all regions except China, Israel, Japan, South Africa, South Korea, and Taiwan



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 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.
- **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 Version 5.2. For more information, visit www.energystar.gov.

- **Off:** Lowest power mode of the system when Mac Pro is shut down. Also referred to as Standby.
- **Idle:** System is on and has completed loading Mac OS X.
- **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.
- **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. PVC-free AC power cord available in all regions except China, Israel, Japan, South Africa, South Korea, and Taiwan.
2. Mac Pro systems configured with a Fibre Channel card do not meet ENERGY STAR requirements.
3. Mac Pro achieved a Gold rating from EPEAT in the United States and Canada.

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