



# Mac Pro

## Environmental Report



Model MB535, MB871

Date introduced  
March 3, 2009

### Environmental Status Report



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

- Brominated flame retardant-free
- PVC-free internal cables
- Highly recyclable aluminum enclosure

Meets ENERGY STAR®  
Version 5.0 requirements. <sup>1</sup>



Mac Pro achieved a  
Gold rating from EPEAT. <sup>2</sup>



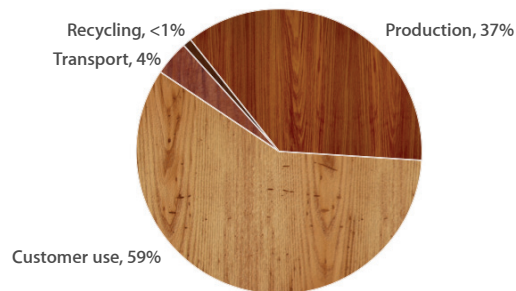
## Apple and the Environment

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 the Mac Pro as it relates to climate change, energy efficiency, restricted substances, and material efficiency.

## Climate Change

Greenhouse gas emissions have an impact on the planet's balance of land, ocean, and air temperature. 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 Mac Pro over its life cycle.

### Greenhouse Gas Emissions for Mac Pro



Total greenhouse gas emissions: 2110 kg CO<sub>2</sub>e

## Energy Efficiency

Because the largest portion of product related greenhouse gas emissions result from its 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.

The Mac Pro outperforms the stringent requirements of the ENERGY STAR 5.0, months ahead of its effective date. It also consumes 21 percent less power than the previous generation in idle mode. The table details the power consumed in different use modes.

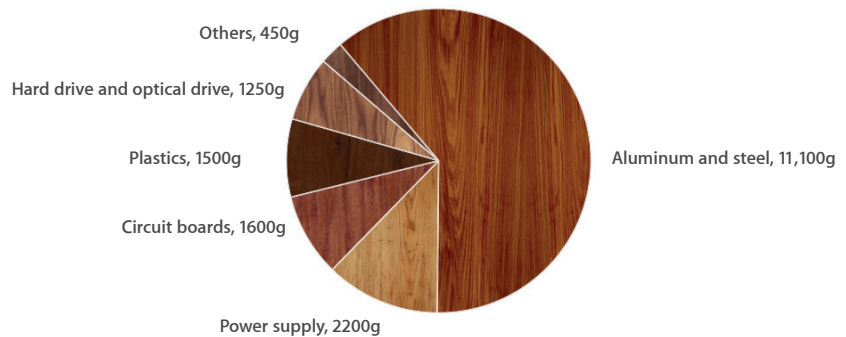
### Power Consumption for Mac Pro

| Mode                    | 100V   | 115V   | 230V   |
|-------------------------|--------|--------|--------|
| Off                     | 0.65W  | 0.67W  | 0.84W  |
| Sleep                   | 8.32W  | 8.10W  | 8.22W  |
| Idle                    | 133.7W | 132.6W | 130.5W |
| Power supply efficiency | 85%    | 85%    | 87%    |

## Material Efficiency

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

### Material Use for Mac Pro



### Simplified Design

Doing more with less. By designing the Mac Pro interior with a more efficient layout, Apple engineers removed 6 feet of internal cables. Removing cables helps improve recyclability and reduce overall material consumption.

## Packaging

The packaging for the 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 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 PBB and PBDE brominated flame retardants (BFRs). The Mac Pro goes even further than the requirements of the RoHS Directive by incorporating the following more aggressive restrictions:

- Brominated flame retardant (BFR)-free
- All internal cables free of polyvinyl chloride (PVC)



## Recycling

Through ultra-efficient design and 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/environment/recycling/](http://www.apple.com/environment/recycling/).

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## Definitions

**Electronic Product Environmental Assessment Tool (EPEAT):** A program that ranks computers and displays based on environmental attributes in accordance with IEEE 1680. For more information visit [www.epeat.net](http://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 CO<sub>2</sub> equivalency factors (CO<sub>2</sub>e):

- **Production:** Includes the extraction, production, and transport of raw materials and the manufacture of the product, as well as 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, 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 Version 5.0. For more information, visit [www.energystar.gov](http://www.energystar.gov).

- **Off:** Lowest power mode of the system when it 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 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 chlorine.

1. Mac Pro systems configured with a Mac Pro RAID card or Fibre Channel card do not meet ENERGY STAR requirements.
2. Mac Pro achieved a Gold rating from EPEAT in the United States, Canada, France, Germany and the UK. Mac Pro systems configured with a Mac Pro RAID or Fibre Channel card do not meet EPEAT requirements.