

Apple Product Environmental Specification

Product: Mac Pro

Ordering Part Numbers:

MA970, Two 2.8GHz Quad-Core Intel Xeon Processors

Date: January 8, 2008

This list of environmental attributes can be used as a guide to determine product compliance with various regional, country, and industry sector product environmental criteria. The environmental criteria listed is based on programs such as ECMA, IT ECO (formerly SITO), Blue Angel, ENERGY STAR®, and TCO.

Each criteria listed includes a reference to the section of the Eco-label specification where it is described.

Note: Not all environmental criteria apply to all products.

This environmental specification is provided for informational purposes only. Nothing contained within shall be construed as a warranty, expressed or implied, with respect to the product.

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1.0	<i>Environmental policy & environmental management</i>	2
	An environmental policy and environmental management system (EMS) demonstrates the commitment, purpose, objective and mission of a company. Apple has established an internal EMS, and has certified its facilities in Sacramento, CA, Ireland, and Singapore to ISO 14001.	
2.0	<i>Environmentally conscious design</i>	2
	Environmentally conscious design is the systematic approach of identifying and incorporating product features and functions with respect to environmental, health and safety objectives throughout all stages of a product's life. Apple has established a process where we address these issues in the design, development, manufacture, use, and end-of-life of our products.	
3.0	<i>Banned/restricted materials</i>	3
	Some materials that have traditionally been used in electronic products have been determined to be environmental or health hazards. The use of these materials has been banned or restricted by legislation or eco-labels.	
4.0	<i>Batteries</i>	3
	Apple uses rechargeable batteries to provide power for notebooks, develops power management software and energy saving features to obtain maximum efficiency, and avoids batteries that contain lead, cadmium and/or mercury.	
5.0	<i>Energy consumption</i>	4
	The use of energy-efficient products results in savings in energy costs and the reduction of pollution resulting from the generation of electricity. Apple promotes energy conservation in its product design and performance including our participation in the ENERGY STAR® program and no-load power consumption programs such as the EU Code of Conduct for external power supplies, and the U.S. Federal Energy Management Program. The energy data listed reflects standard configurations only. Other configurations may yield different energy values.	
6.0	<i>Emissions</i>	4
	Apple products are tested and certified to international standards to assure the safe use of our products.	
7.0	<i>Electrical Safety, EMC, and connection to telephone network</i>	5
	The safe use of Apple products is of foremost concern. Therefore, Apple tests and certifies our products to international standards to assure their safe use.	
8.0	<i>Ergonomics</i>	5
	Visual ergonomics is an important concern to computer users. It affects user comfort and performance. Apple designs, tests and certifies our displays to meet stringent visual ergonomics (front of screen) criteria. In addition, our displays have the capability of tilting and swiveling to adjust to user needs.	
9.0	<i>Packaging and documentation</i>	5
	Apple evaluates the environmental attributes of our packaging for hazardous materials as well as the minimization of the quantity and weight of the packaging materials. These considerations enable and promote recycling of packaging materials for our customers.	
10.0	<i>Recycling</i>	5
	Apple designs its products with specific features and functions that promote the ease of recyclables. In addition, in specific countries, Apple has established takeback/recycling programs to assist customers.	
11.0	<i>Additional Attributes</i>	5
12.0	<i>Noise Characteristics</i>	5
	Acoustical noise is becoming an increasingly important concern to computer users. It affects user comfort and performance, and it may become disruptive and annoying to the user or others in the work environment. For these reasons, Apple is concerned and designs our products to generate acoustical noise levels as low as possible.	
13.0	<i>Additional Information/Notes</i>	6

Apple Product Environmental Specification		Requirement met			IT ECO	Blue Angel	TCO '99	ECMA
		Yes	No	N/A	('02)	Desktop CPUs	Desktop Display	(6/99)
1	Environmental policy & environmental management							
1.1	The manufacturer has a documented environmental policy approved by the management	X			C3.1		1.1.1	5.1
1.2	The manufacturer has an environmental management system according to: ISO 14001 __, EMAS ___ or internal system <u>X</u>	X			C3.2		1.1.3	5.1
1.3	The manufacturer regularly publishes an environmental report		X		C3.3			
1.4	The manufacturer and the manufacturer's representative market its products in accordance with environmental rules in applicable marketing legislation	X					1.1.4	
2	Environmentally conscious design							
2.1	Large mechanical plastic parts consist of one material or of materials that are easy to separate	X			P6.3			5.9
2.2	All plastic components that weigh >100g shall be made from no more than 2 types of plastics	X			P6.3		1.4.2	
2.3	The variety of materials forming components of comparable functions are limited to one material	X				B.1		
2.4	The proportional use of recycle is permitted		X			B.5		
2.5	Mechanical plastic parts, heavier than 25g are marked with plastic identification code according to ISO 11469 and ISO 1043, parts 1-4 Plastics - Symbols and abbreviated terms	X			P6.4, 6.5, P6.15	3.1.3	1.4.1	5.9
2.6	The coating of plastic components is limited to a minimum	X				B.3		
2.7	Paints, lacquers or varnishes do not increase the weight of any plastic component weighing >25g by more than 1%. In-mold decoration is not allowed in any plastic components weighing >25g. Metallic paint (particles > 10 microns) is not allowed	X					1.4.3	
2.8	No internal or external metallization or molded in metal parts or glued parts in plastic housing	X					1.4.4(a)	
2.9	Plastic parts are free from metal inlays that cannot be removed by one person alone with a standard tool	X			P6.6			
2.10	Labels should be inherent and separable for recycling			X	P6.7			
2.11	Components made of incompatible materials can be removed separately or via separation aids	X				A.1		
2.12	Connections to be separated during disassembly are easily traceable	X				A.3		
2.13	The product is designed for easy dismantling during recycling; gluing/welding of different materials has been avoided	X			P6.1	3.1.1		
2.14	Disassembly can be done exclusively with all-purpose tools	X				A.4		
2.15	Disassembly can be done by a single person	X				A.9		
2.16	All screwed connections between modules can be separated with no more than three tools	X				A.7		
2.17	Large-size plastic case parts are so designed as to ensure the reutilization of the plastics on the basis of existing technologies for the production of high-quality and long-lived plastic products	X				3.1		
2.18	Materials and material compounds can be recycled on an industrial scale (technologically and economically useful)	X				B.4		
2.19	Future recycling and material utilization processes are taken into account	X				3.1		
2.20	Electronic modules containing harmful substances are easily traceable and removable for recycling	X				A.2		
2.21	The case parts are free from electronic modules	X				A.11		
2.22	The product has a modular design and no special tools are needed to upgrade the product	X			P6.8	4.4, C.1		
2.23	Processor, memory and cards of various types can be changed/upgraded	X			P6.9	4.4, C.2		5.2
2.24	Information on the ability to change/upgrade components is included in the product documentation	X				4.5		5.2
2.25	Design allows for installation, expansion exchange, upgrade, or attachment of a mass storage unit	X			P6.10	4.4, C.3		5.2

Apple Product Environmental Specification		Requirement met			IT ECO	Blue Angel	TCO '99	ECMA
		Yes	No	N/A	('02)	Desktop CPUs	Desktop Display	(6/99)
3	Banned/restricted materials							
3.1	Compliant with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Exempted applications to Directive 2002/95/EC in use: <ul style="list-style-type: none"> Lead in electronic ceramic parts Lead in glass of cathode ray tubes, electronic components and fluorescent tubes Lead used as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight, and copper containing up to 4% lead by weight 	X						
3.2	No CFCs or HCFCs present in the product	X			P1.1			
3.3	No substances included in annex A, B or C of the Montreal Protocol on Substances that Deplete the Ozone Layer are used in the manufacture of the printed wiring boards, assembly of the PWBs and final assembly of the product	X					1.2.1	5.8
3.4	No asbestos, PCB (polychlorinated biphenyls) or PCT (polychlorinated terphenyls) present in the product	X						5.8
3.5	No mercury present in the product (exception: mercury in flat panel display lamps for backlighting)	X			P1.2			5.8
3.6	<u>Mercury (Hg) content in flat panel display backlight lamp(s):</u> Number of backlight lamps in display: Average mercury per lamp: Maximum mercury per lamp: Maximum total mercury in flat panel display:	← See Values		X	P6.17		1.3.2	
3.7	No brominated or chlorinated flame retardants, PBB or PBDEs present in mechanical plastic parts heavier than 25g	X			P6.12		1.3.5(a)	5.8
3.8	The base material of PWB must not contain any PBB (polybrominated biphenyls), PBDE (polybrominated diphenyl ethers) or chlorinated paraffins	X				3.1.2.2		
3.9	Plastic components that weigh >25g shall not contain flame retardants that contain organically bound chlorine or bromine. PVC is inherently flame retardant with organically bound chlorine and, therefore, not allowed	X					1.3.5	
3.10	No Antimony Trioxide (Sb ₂ O ₃) flame retardants in plastic enclosures	X						
3.11	No polyvinyl chloride (PVC) is used in plastic resins	X					1.4.2	
3.12	No cadmium (Cd) or cadmium compounds & lead (Pb) or lead compounds are intentionally added to cable enclosures	X						5.8
3.13	No cadmium (Cd) or lead (Pb) present in mechanical plastic parts heavier than 25g	X						5.8
3.14	No cadmium (Cd) in the CRT (Cathode Ray Tube)			X			1.3.1	5.8
3.15	No mercury (Hg) or cadmium (Cd) in electronic components	X					1.3.4	5.8
3.16	No cadmium (Cd) or lead (Pb) in paints and inks used in the product	X			P1.4			5.8
3.17	No chloroparaffins with chain length 10-13 carbon atoms, chlorinated greater than 50% are present in mechanical plastic parts heavier than 25g	X						5.8
4	Batteries							
4.1	Batteries, defined as hazardous in the EU Directive 91/157/EEC and amendments 98/101/EC, are not used in the product	X				3.1.4		5.10
4.2	Battery handling information is provided in the product documentation	X				3.1.4		5.10
4.3	No mercury (Hg) or cadmium (Cd) in batteries	X			P2.2	3.1.4	1.3.3(a)	5.8
4.4	Backup battery chemical composition: Lithium-Manganese Coin Cell (CR2032)	← See Value						

Apple Product Environmental Specification				Requirement met			IT ECO	Blue Angel	TCO '99	ECMA	
				Yes	No	N/A	('02)	Desktop CPUs	Desktop Display	(6/99)	
5	Energy consumption										
5.1	Power supply maximum continuous power rating			980 W			← See Values	P8.1	4.1.1.6	4.5	5.3
	Mode	100V	115V	230V							
	Off	1.72 W	1.74 W	2.73 W							
	Sleep – WOL on	6.98 W	7.07W	7.73 W							
	Idle	141 W	139 W	138 W							
	Typical Energy Consumption Limit	≤106.8 W	≤106.4 W	≤104.3 W							
	Typical Energy Consumption Measured	100.3 W	98.9 W	98.4 W							
5.2	Internal power supply energy efficiency					← See Values	X				
	<u>Input Power Source</u>	<u>At 20% rated output</u>	<u>At 50% rated output</u>	<u>At 100% rated output</u>							
	100V, 50 Hz	81%	86%	83%							
	115V, 60 Hz	82%	86%	84%							
	230V, 50 Hz	83%	88%	87%							
5.3	Product meets ENERGY STAR® 4.0 as a Workstation			X			P8.4	4.1.1.1	4.5	5.3	
5.4	External power supply/AC Adaptor meets European Code of Conduct (2003) criteria					X					
5.5	Product meets US FEMP (Federal Energy Management Program) criteria			X							
5.6	Information about the energy save function is given in the user manual			X			P8.3			5.3	
5.7	Sleep mode is activated automatically			X			P8.1	4.1.1.2			
5.8	Product shall not be damaged if separated from power source for at least 4 weeks			X				4.1.1.4			
5.9	The computer supports an operating system allowing the implementation of power-saving functions. Unit must offer at least one power-saving rest mode which activates automatically after a factory pre-set interval			X				4.1.1.2			

Definitions of energy consumption modes in section 5.1:

The following modes correspond to the requirements of the Energy Star Program Requirements for Computers Version 4.0 specification. Refer to the specification for the complete test conditions for workstations. The system is connected to a gigabit Ethernet network for each mode.

Idle: State in which the system has completed loading Mac OS X after a period of inactivity.

Sleep - WOL on: Low power state that is entered automatically after a period of inactivity or by selecting sleep from the Apple menu. Wake-on-LAN, a Mac OS X default feature that allows the system to wake from sleep when directed by a network request, is enabled for this test.

Off: Lowest power mode of the system, also referred to as standby-mode or shutdown.

Typical Energy Consumption: Energy Star 4.0 power consumption unit for workstations.

6	Emissions										
6.1	Alternating Electric Field: Band I: 5 Hz to 2 kHz, < 10 V/m, measured 30 cm & 50 cm in front of display; Band II: 2 kHz to 400 kHz, < 1 V/m, measured at 50 cm around display & at 30 cm in front (Products with CRTs and Flat Panels)					X				4.3	
6.2	Alternating Magnetic Fields: Band I: 5 Hz to 2 kHz, ≤ 200 nT, measured at 50 cm around & at 30 cm in front; Band II: 2 kHz to 400 kHz, ≤ 25 nT measured at 50 cm around display (Products with CRTs and Flat Panels)					X				4.4	

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13	Additional Information/Notes																																														
13.1	Product recycling/take-back systems are local and regionalized. They may not exist, in the same manner, in all municipalities/countries.																																														
13.2	Apple has established regional systems for packaging take-back/recycling in those countries with packaging legislation.																																														
13.3	<p><u>Definitions:</u></p> <table border="0"> <tr> <td>CAS</td> <td>Chemical Abstract Service</td> <td>MSDS</td> <td>material safety data sheet</td> </tr> <tr> <td>CFC</td> <td>chlorofluorocarbon</td> <td>PBB</td> <td>polybrominated biphenyls</td> </tr> <tr> <td>CRT</td> <td>cathode ray tube</td> <td>PBDE</td> <td>polybrominated diphenyl ethers</td> </tr> <tr> <td>EMAS</td> <td>Eco Management and Audit Scheme</td> <td>PCB</td> <td>polychlorinated biphenyls</td> </tr> <tr> <td>EMC</td> <td>electromagnetic compatibility</td> <td>PCT</td> <td>polychlorinated terphenyl</td> </tr> <tr> <td>EPS</td> <td>expanded polystyrene</td> <td>PVC</td> <td>polyvinyl chloride</td> </tr> <tr> <td>HCFC</td> <td>hydro chlorofluorocarbon</td> <td>PWB</td> <td>printed wiring board</td> </tr> <tr> <td>ISO</td> <td>International Organization of Standardization</td> <td>SPI</td> <td>Society of Plastics Industry</td> </tr> <tr> <td>IT ECO</td> <td>Association of the Swedish IT and Telecom Industry</td> <td>TBBA</td> <td>tetrabrominated bisphenol A</td> </tr> <tr> <td>LCD</td> <td>liquid crystal display</td> <td>VDT</td> <td>visual display terminal</td> </tr> <tr> <td>LDPE</td> <td>low density polyethylene</td> <td></td> <td></td> </tr> </table>			CAS	Chemical Abstract Service	MSDS	material safety data sheet	CFC	chlorofluorocarbon	PBB	polybrominated biphenyls	CRT	cathode ray tube	PBDE	polybrominated diphenyl ethers	EMAS	Eco Management and Audit Scheme	PCB	polychlorinated biphenyls	EMC	electromagnetic compatibility	PCT	polychlorinated terphenyl	EPS	expanded polystyrene	PVC	polyvinyl chloride	HCFC	hydro chlorofluorocarbon	PWB	printed wiring board	ISO	International Organization of Standardization	SPI	Society of Plastics Industry	IT ECO	Association of the Swedish IT and Telecom Industry	TBBA	tetrabrominated bisphenol A	LCD	liquid crystal display	VDT	visual display terminal	LDPE	low density polyethylene		
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