



**Environmental criteria comparison between**

**TED – The Eco Declaration, ECMA-370**

**for**

**- Personal Computers -**

**and**

**TCO**

**Blue Angel**

**EU Flower**

**Nordic Swan**

**US EPEAT**

## Introduction

In response to interest from public and institutional customers, ICT and CE experts started to develop ECMA TR/70 in 1995, with two revisions in the decade to follow. TR/70 catalogued product parameters related to the environment.

To meet the growing customer demand for standardized, comparable product environmental information, IT Företagen developed the IT Eco Declaration system in 1996, with frequent updates.

To have one widely accepted type II eco declaration, IT Företagen and Ecma International harmonised both declarations into ECMA-370 "THE ECO DECLARATION - TED". TED meets the basic principles of ISO 14021 (environmental labels and declarations / self declared environmental claims) and eco design standards such as ECMA-341.

It also addresses stakeholder comments on ECMA TR/70 and the IT Eco Declaration and recent regulatory changes.

The objective of this Standard is the use of accurate and verifiable environmental self-declarations that:

- increase potential for market forces to stimulate environmental improvements in products;
- prevent or minimise unwarranted claims;
- reduce marketplace confusion;
- facilitate international trade;
- increase opportunity for purchasers, potential purchasers and users to make more informed choices.

# Environmental criteria comparison for personal computers

(see 1<sup>st</sup> page for compared systems)

## Background

This document was established to compare the environmental criteria in TED, The Eco Declaration, ECMA-370 , 2<sup>nd</sup> edition with criteria found in certain Eco Label and Self Declarations systems for Personal Computer Systems, desktop and portable computers. The comparison is based on the status per December 2006 of these systems.

Readers are requested to be aware that this comparison is an overview of the environmental criteria found in the investigated systems. For the exact criteria wording, the original documents have to be studied.

## This document contains comparison of:

TED, The Eco Declaration, ECMA-370, 2<sup>nd</sup> edition, December 2006 compared with

1. TCO '05, 21<sup>st</sup> September 2005, version 2.0 ([www.tcodevelopment.com](http://www.tcodevelopment.com))
2. Blue Angel RAL UZ 78, June 2006 ([www.blauer-engel.de](http://www.blauer-engel.de))
3. EU Flower 2005/343/EC, 11th April 2005 for portable computers and  
EU Flower 2005/341/EC, 11th April 2005 for personal computers  
([www.europa.eu.int/comm/environment/ecolabel](http://www.europa.eu.int/comm/environment/ecolabel))
4. Nordic Swan. Version 4.1, 10 June, 2005 ([www.svanen.nu](http://www.svanen.nu))
5. Electronic Product Environment Assessment Tool, EPEAT, IEEE 1680-2006 ([www.epeat.net](http://www.epeat.net))

- Company Environmental Profile – TED / ECMA-370 compared with Blue Angel, EPEAT, EU Flower, Nordic Swan and TCO
- Product Environmental Attributes - TED / ECMA-370 compared with Blue Angel, EPEAT, EU Flower, Nordic Swan and TCO
- Requirements found in Blue Angel, EPEAT, EU Flower, Nordic Labeling and TCO but not in TED / ECMA-370

## Key to the table of signs:

- Similar or more rigorous mandatory requirements. For exact wording, see original document.
  - No requirements
- PC This requirement only applies for Personal Computer Systems  
LT This requirement only applies for Lap Top Computers

## Annex A (normative) Company Environmental Profile

This Annex is also provided as a separate file – [ECMA-370-Annex-A.doc](#) – that shall be used for the declarations. Provide URL if link doesn't work.

Item	* =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO' OS
<b>- Legal requirements</b>						
<b>C1</b>	<b>Product recycling</b>					
C1.1*	The company participates in a system or has its own system for collection and recycling of end of life products in countries where the company puts them on the market and where required (e.g. in line with EU WEEE directive 2002/96/EC)	●	●	●	●	●
<b>C2</b>	<b>Battery recycling</b>					
C2.1*	The company participates in a system or has its own system for collection and recycling of batteries in countries where the company puts products on the market (e.g. in line with EU battery directive 91/157/EEC) or pays eco tax / fee where required.	●	●	●	●	-
<b>C3</b>	<b>Packaging recycling</b>					
C3.1*	The company participates in a system or has its own system for collection and recycling of packaging material in countries where the company puts products on the market and where required (e.g. in line with EU packaging directive 94/62/EC)	-	●	-	●	-

<b>- Market requirements</b>						
<b>C4</b>	<b>Environmental policy and environmental management</b>					
C4.1*	The company has a documented environmental policy approved by the management.	-	●	-	-	●
C4.2*	The company has an environmental management system covering: Product development Manufacturing If so certified according to: <input type="checkbox"/> ISO 14001 <input type="checkbox"/> EMAS <input type="checkbox"/> Other as specified in C6	-	●	-	-	●
C4.3	The company regularly publishes an environmental report. If so, it meets the recommendations of <input type="checkbox"/> The Global Reporting Initiative <input type="checkbox"/> Other as specified in C6	-	●	-	-	-
<b>C5</b>	<b>Recycling</b>					
C5.1*	Information about the product, battery & packaging take back system (C1, C2, C3) is available in printed or electronic format.	●	-	●	●	●

## Annex B (normative) Product Environmental Attributes

This Annex is also provided as a separate file – [ECMA-370-Annex-B.doc](#) – that shall be used for the declarations. Provide URL if link doesn't work.

Item	* =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO <sup>1</sup> 05
<b>- Legal requirements</b>						
<b>P1</b>	<b>Hazardous substances and preparations</b>					
P1.1*	Products do not contain lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) as specified in <i>EU 2002/95/EC and its amendments</i>	●	●	●	●	●
P1.2*	Products do not contain Asbestos ( <i>EU 76/769/EEC, amendment 1999/77/EC</i> )	-	-	-	-	-
P1.3*	Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbontetrachloride, 1,1,1-trichloroethane, methyl bromide ( <i>EU : Regulation (EC) No. 2037/2000, 2038/2000, 2039/2000</i> )	-	-	-	-	-
P1.4*	Products do not contain polychlorinated biphenyl (PCB), polychlorinated terphenyl (PCT), ( <i>EU 76/769/EEC</i> )	-	-	-	-	-
P1.5*	Products do not contain short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP as specified in <i>Norwegian regulation relating to restrictions on the use of certain dangerous chemicals 20.12.2002</i>	-	-	●	●	-
P1.6*	Textile and leather parts with direct skin contact do not contain Tri-(2,3,-dibromopropyl)-phosphate (TRIS), Tris-(aziridinyl)-phosphineoxide (TEPA), polybrominated biphenyl (PBB) ( <i>EU 76/769/EEC</i> )	-	-	-	-	-
P1.7*	Textile and leather parts with direct skin contact do not contain Azo colourants that split aromatic amines as specified in <i>EU 76/769/EEC, amendment 2003/3/EC</i>	-	-	-	-	-
P1.8*	Wooden parts do not contain arsenic and chromium as a wood preservation treatment as well as pentachlorophenol and derivatives ( <i>EU 76/769/EEC</i> )	-	-	-	-	-
P1.9*	Parts with direct and prolonged skin contact do not release nickel in concentrations higher than specified in <i>76/769/EEC, amendment 94/27/EEC</i>	-	-	-	-	-
<b>P2</b>	<b>Batteries</b>					
P2.1*	If hazardous batteries (as defined in <i>91/157/EEC</i> ) are used in the product they are easily removable and labelled with the disposal and the substance logo (as defined in <i>91/157/EEC, 93/86/EEC</i> )	-	●	●1	●	-
P2.2*	If batteries are used in the product they do not contain mercury in concentrations higher than specified in <i>91/157/EEC</i>	-	-	●	●	-
P2.3*	If batteries are permanently installed in the product, information on the environmentally hazardous substances and safe removal method is listed in the user manual ( <i>91/157/EEC</i> )	-	-	-	●	-
<b>P3</b>	<b>Electrical safety, EMC and connection to the telephone network</b>					
P3.1*	The product meets the Low Voltage Directive (LVD) regarding electrical safety ( <i>73/23/EEC &amp; 93/68/EEC</i> )	-	-	-	-	●
P3.2*	The product meets the EMC Directive regarding electromagnetic compatibility ( <i>89/336/EEC / 2004/108/EEC after June, 20<sup>th</sup> 2007</i> )	-	-	-	-	-
P3.3*	If product is intended for connection to a public telecom network or contains a radio transmitter, it meets the EU R&TTE Directive ( <i>1999/5/EC</i> )	-	-	-	-	-
P3.4*	The product is CE-marked and a Declaration of Conformity is available ( <i>93/68/EEC</i> )	-	-	-	-	-

1. A requirement which is fulfilled through another requirement

Item	* =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO <sup>+</sup> 05
<b>P4</b>	<b>Consumable materials</b>					
P4.1*	If a photo conductor (drum, belt etc.) is used in the product, it does not contain cadmium in concentrations higher than specified in (76/769/EEC and 91/338/EEC)	-	-	-	-	-
P4.2*	If ink/toner is used in the product, it does not contain cadmium in concentrations higher than specified in (76/769/EEC and 91/338/EEC)	-	-	-	-	-
P4.3*	If the ink/toner formulation/preparation is classified as hazardous according to EU Directive 1999/45/EC, and as amended, the product/packaging is labelled and a Material Safety Data Sheet (MSDS) in accordance with (99/45/EC & 2001/58/EC) is available.	-	-	-	-	-
<b>P5</b>	<b>Product packaging</b>					
P5.1*	The sum of the concentration levels of lead, cadmium, mercury, and hexavalent chromium present in packaging or packaging components does not exceed 0,01% by weight (94/62/EC).	-	-	-	-	-
P5.2*	Plastic packaging material is marked according to ISO 11469 referring ISO 1043.(97/129/EEC)	●	-	-	-	-
P5.3*	The product packaging material is free from CFC/HCFC.	-	-	-	-	-
<b>P6</b>	<b>Treatment information</b>					
P6.1*	Information for recyclers/treatment facilities (e.g. as requested by 2002/96/EC) is available.	●	-	●	●	●

<b>- Market requirements</b>						
<b>P7</b>	<b>Design</b>					
	<b>Disassembly, recycling</b>					
P7.1*	Parts that have to be treated separately are easily separable	-	●	●	●	●
P7.2*	Plastic materials in covers/housing have no surface coating.	●	●	●	●	-
P7.3*	Plastic parts >100g consist of one material or of easily separable materials.	●	-	●	●	●
P7.4*	Plastic parts >25g have material codes according to ISO 11469 referring ISO 1043.	●	●	●	●	●
P7.5	Plastic parts are free from metal inlays or have inlays that can be removed with commonly available tools.	-	●	●	●	-
P7.6*	Labels are easily separable. (This requirement does not apply to safety/regulatory labels).	●	-	●	●	-
	<b>Product lifetime</b>					
P7.7*	Upgrading can be done e.g. with processor, memory, cards or drives	●	-	●	●	-
P7.8*	Upgrading can be done using commonly available tools	●	●	●	●	--
P7.9.	Spare parts are available after end of production for:        years	●	●	●	●	-
P7.10	Service is available after end of production for:        years	-	●	●	●	-
	<b>Material and substance requirements</b>					
P7.11*	Product cover/housing material type:	-	-	-	-	-
P7.12*	Electrical cable insulation material of power cables are halogen free (including PVC)	-	-	-	-	-
P7.13*	Electrical cable insulation material of signal cables are halogen free (including PVC)	-	-	-	-	-
P7.14	All cover/housing plastic parts >25g are halogen free	●	●	-	●	●
P7.15	All printed circuit boards (without components) >25g are halogen free	-	-	-	-	-
P7.16	Chemical specifications of flame retardants in cover / housing plastic parts >25g according ISO 1043-4:	●	-	●	●	●

Item	* =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO' 05
P7.17	Chemical specifications of flame retardants in printed circuit boards (without components) >25g according ISO 1043-4:	●	-	●	●	●
P7.18	Weight of recycled material in plastic parts is ?	●	●	-	-	-
P7.19	Plastic parts >25g are free from flame retardant substances/preparations above 0.1% classified as R45/46, R50/51/53 and R60/61 (67/548/EEC)	●	●	●	●	●
P7.20	Light sources are free from mercury If mercury is used specify: Number of lamps:                      and max. mercury content per lamp:                      mg	●	●	●	●	●
<b>P8 Batteries</b>						
P8.1*	Product does not contain batteries defined as hazardous according to 91/157/EEC	●	●	●	●	-
P8.2*	Battery chemical composition:	●	-	-	●	-
P8.3	Batteries meet the requirements of the following voluntary program/s:	-	-	-	●	-
<b>P9 Energy consumption</b>						
9.1	For the product the following power levels or energy consumptions have been measured:	-	-	-	-	-
	Power level in volts at mode:					
	On-max	-	-	-	-	-
	On-normal *	-	-	-	●	-
	On-idle	●	-	●PC	-	-
	Save 1 *	●	-	●	●	●
	Save 2	-	--	-	-	-
	Off 1 *	●	-	●	●	●
	Off 2	●PC	-	-	-	-
	* No load (External power supplies/charger plugged in but disconnected from the product)	-	-	●LT	●	-
	* TEC (Typical Energy Consumption per year)	-	-	-	-	-
P9.2*	Information about the energy save function is provided with the product.	-	-	●	●	-
P9.3	The product meets the energy requirements of the following voluntary program/s: ENERGY STAR® MOU or others specify:	●	●	●PC	●	-
<b>P10 Emissions</b>						
<b>Noise emission – Declared according to ISO 9296</b>						
P10.1	Declared A-weighted sound power level $L_{WAd}$ (B)					
	Idle *	●	-	●	●	●
	Operation *	●	-	●	●	●
	Other mode	-	-	-	-	-
	Declared A-weighted sound pressure level $L_{pAm}$ (dB)					
	Idle *	-	-	-	-	-
	Operation *	-	-	-	-	-
	Other mode	-	-	-	-	-
	Measured according to: ISO7779, ECMA-74 or Other	●	-	●	●	●
P10.2	The product meets the acoustic noise requirements of the following voluntary program/s	-	-	-	-	-

Item	** =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO' 05
<b>Chemical emissions from printing products</b>						
P10.3*	Test performed according to ECMA-328 standard or other specified system (The test covers: dust, ozone, styrene, benzene or TVOC)	-	-	-	-	-
P10.4	The product meets the chemical emission requirements of a voluntary program/s which should be specified:	-	-	-	-	-
<b>Electromagnetic emissions</b>						
P10.5	Computer display meets the requirement for low frequency electromagnetic fields of the a voluntary program/s which should be specified	●	-	●	●	-
<b>P11 Consumable materials for printing products</b>						
P11.1*	A Material Safety Data Sheet (MSDS) is available for the ink/toner preparation, even if not legally required (see P4.3).	-	-	-	-	-
P11.2*	Paper containing recycled fibres that meets the requirements of EN12281 can be used.	-	-	-	-	-
P11.3*	2-sided (duplex) printing/copying is an integrated product function.	-	-	-	-	-
<b>P12 Ergonomics for computing products</b>						
P12.1*	The computer system meets the ergonomic requirements of EN 29241-3, -7, -8 for CRT displays and EN-ISO13406-2 for flat panel displays.	●	-	-	●	●
P12.2*	The product keyboard meets the requirements of ISO 9995 and EN 29241-4.	●	-	-	●	●
P12.3*	The computer input device meets the requirements of ISO 9241-9.	-	-	-	-	-
<b>P13 Packaging and documentation</b>						
P13.1*	Product packaging material type and weight	-	-	-	-	-
P13.2*	Product plastic packaging is halogen free (including PVC)	●	-	-	-	-
P13.3*	User and product documentation do not contain chlorine bleached paper	-	-	-	-	-
P13.4*	User and product documentation contain recycled paper	-	●	-	-	-



## Requirements found in Blue Angel, EPEAT, EU Flower, Nordic Labeling and TCO but not in TED / ECMA-370

Item	* =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO 05
Requirements not found in TED						
1	Declaration of product weight (lbs)	-	●	-	-	-
2	Easy disassembly of external enclosure	-	●	-	-	-
3	Reduced number of plastic material types	-	●	-	-	-
4	Minimum 65 percent reusable/recyclable	-	●	-	-	-
5	Minimum 90 percent reusable/recyclable	-	●	●	●	-
6	Manual separation of plastics	-	●	-	-	-
7	Renewable energy accessory available / standard	-	●	-	-	-
8	all packaging components shall be easily separable by hand into individual materials to facilitate recycling.	-	●	●	-	-
9	Packaging 90% recyclable and plastics labeled	-	●	-	-	-
10	Declaration of recycled content in packing	-	●	-	-	-
11	Can one qualified person dismantle the product alone?	●	-	●	●	-
12	Are the connections easy to locate and access, as standardized as possible and accessible with generally available tools?	●	-	-	●	-
13	Does the computer have a minimum of two additional interfaces for external storage media and other peripheral devices?	-	-	-	●	-
14	Does the portable computer have ports for external monitor and for external keyboard and mouse?	-	-	-	●	-
15	In case new flame-retardants are to be introduced I/We will inform the ecolabelling organization and provide the necessary documentation.	-	-	-	●	-
16	CRT-displays must fulfil the requirements applicable to electrostatic potential in accordance with the methods contained in TCO '03 / TCO '99.	-	-	-	●	●
17	The computer shall support the ACPI (2) S3 sleep state (suspend to RAM) to allow minimum energy consumptions of no more than 4 watts. The computer shall be able to wake up from this mode in response to a command from any of the following: modem, network connection, keyboard or mouse action.	●	-	●	-	-
18	The monitor shall have an easily accessible on-off switch.	-	-	●	-	-
19	information that the energy drawn from the mains can be reduced to zero if the computer is unplugged or if the wall socket is switched off;	-	-	●	-	-
20	information as to how to make appropriate use of WLAN cards thus minimizing security risks;	-	-	●	-	-
21	where used, cardboard packaging shall consist of at least 80 % recycled material.	-	-	●	-	-
22	Names and addresses of the manufacturing plants.	-	-	-	-	●
23	Electric modules are easily traceable and removable.	●	-	-	-	-
24	Necessary points of application and working space for disassembly tools have been taken into consideration.	●	-	-	-	-
25	All connection elements to be separated for recycling purposes are axially accessible.	●	-	-	-	-
26	Screwed connections between modules can be separated with no more than three tools .	●	-	-	-	-
27	At least 50% of the separable connections between plastic components are plug/snap connections.	●	-	-	-	-
28	The supporting surface can be maintained during the entire disassembly work.	●	-	-	-	-
29	Case parts are free from electronic modules.	●	-	-	-	-

Item	* =mandatory to fill in. Additional information regarding each item may be found under C6.	Blue angel	EPE AT	EU Flower	Nordic Swan	TCO' 05
30	Components made of the same sort of plastics are dyed uniformly or compatibly.	●	-	-	-	-
31	Batteries and accumulators which are not designed for exchange by the user are replaceable at the end of their service life without needing to exchange the entire printed circuit board or similar parts	●	-	-	-	-
32	The design of switches and buttons meets the requirements of IEEE Standard 1621.	●	-	-	-	-
33	The device allows the user to adjust the monitor's default time to sleep mode where the monitor meets the Energy Star requirements for Monitors, Version 4.0, Tier 2.	●	-	-	-	-
34	For keyboards Declared A-weighted sound-power level:	●	-	-	-	-
35	The cordless keyboard is characterised by the following radiation properties: power flux density and electric field strength:	●	-	-	-	-
36	The maximum level of fluoroorganic additives does not exceed 0.5% by weight	●	-	-	-	-
37	Except for process-related technically unavoidable impurities the plastic is free from dioxin and furan forming substances	●	-	-	-	-

**Key to the above table:**

- Similar or more rigorous mandatory requirements. For exact wording, see original document
- No requirements