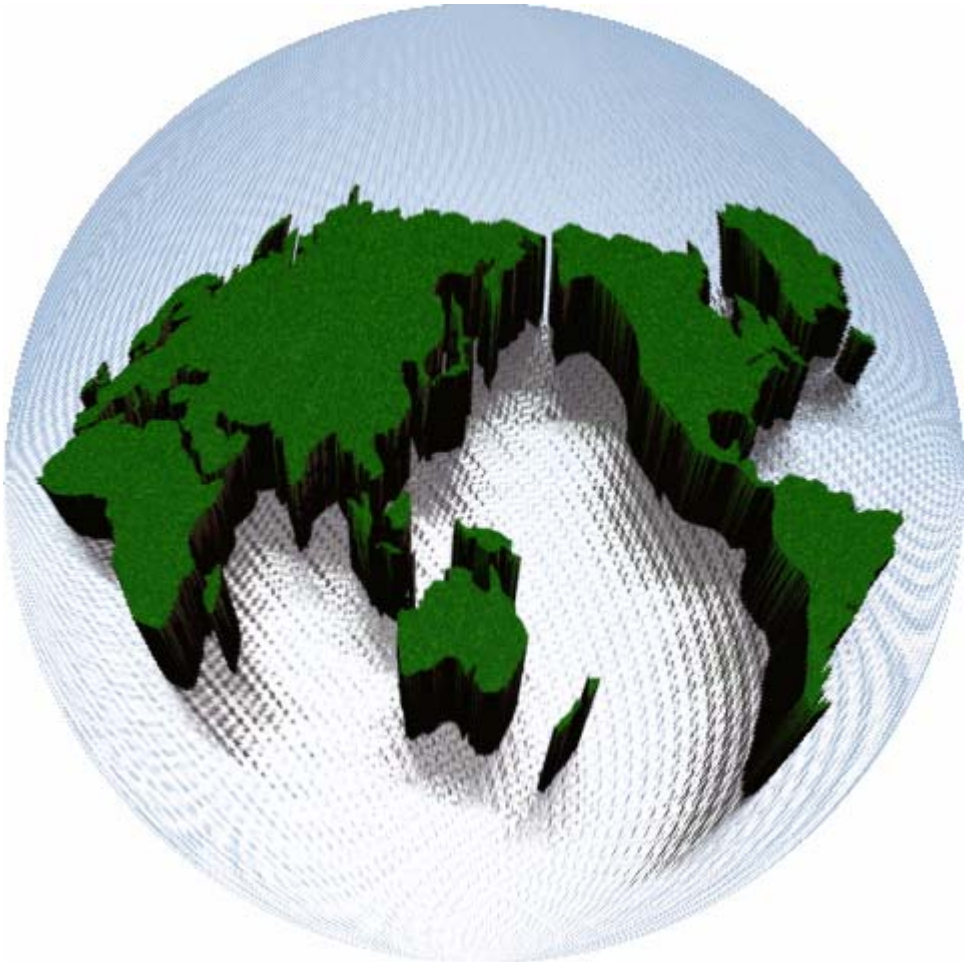
Anritsu Company
Global Green Procurement Guidelines



Contents for

Green Procurement Guidelines:

1. Introduction

The Anritsu Company (hereafter: Anritsu) promotes the procurement of 'green' products (components, materials, etc.) that it uses to manufacture environmentally conscious products.

This guideline describes Anritsu's basic concepts with respect to 'green procurement' as well as general items that Anritsu and its suppliers shall apply to mutually reduce our impact on the environment.

2. Scope

This guideline applies to products (components, materials, etc.) and packaging materials procured by Anritsu.

3. Definition of Terms

The definitions of terms in this guideline are based on the ISO 14001 Environmental Management System:

Product assessment:	Evaluating the effect of products on the environment at the product design stage, and at each step such as parts and materials procurement, manufacturing, logistics, use, recycling, waste disposal, performing necessary design changes for products, and promoting environmentally conscious product development.
Continual Improvement:	Recurring process of enhancing the environmental management system in order to achieve improvements in overall environmental performance consistent with the organization's environmental policy.
Environment:	Surroundings in which an organization operates, including: air, water, land, natural resources, flora, fauna, humans, and their inter-relations.
Prevention of Pollution:	Use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or combined) the creation, emission or discharge of any type of waste, in order to reduce adverse environmental impact.

4. Application of Green Procurement

4.1 The supplier shall work towards creating and promoting an environmental management system according to the ISO 14001 Environmental Management System.

4.2 The supplier shall carry out product assessment so as to minimize the environmental impact of products. The main items that shall be taken into consideration when performing product assessments are shown below:

4.2.1 Materials:

1) Integrate product materials as much as possible.
2) When selecting product materials, select materials that are easily recycled (avoid composites that cannot be easily recycled).
3) As a general rule, do not use substances or compounds that require special treatment before disposal. If use of these substances or compounds is

unavoidable, the supplier shall clarify the name, contents, and places where used, as well as its environmental impact. The supplier shall be asked about precautions to prevent leaks, transportation, recycling, waste treatment methods, etc.

4.2.2 Resource Conservation

1) Recycled materials shall be used for products to the fullest possible extent.
2) Quantities of material used shall be reduced to the fullest possible extent.

4.2.3 Products shall be designed to facilitate easy disassembly with every component being reusable and each material being recyclable to the fullest possible extent.

4.2.4 The materials used in products and components shall be fully, clearly and indelibly indicated to facilitate recycling and optimal disposal.

4.2.5 Products shall be manufactured using low energy-consumption methods to the fullest extent possible.

4.2.6 Packaging materials shall be designed to minimize environmental impact as much as possible.

1) Design packaging materials for repeated reuse.
2) Use recycled materials for packaging
3) Reduce packaging amounts and weight.
4) Mark packaging materials indelibly with recycling symbols.

4.2.7 Products shall be designed as far as possible to eliminate any impact they have on disposal facilities and the environment surrounding these facilities when intermediate treatment and final disposal of products (including packaging materials) are carried out.

4.3 Suppliers shall be requested to create procedures for recycling/disposing of products, and shall provide these procedures when requested by Anritsu.
Examples include:

- Material recycling methods
- Thermal recovery (thermal recycling) methods
- Final disposal methods

5. Investigation of Suppliers' environmental activity

In order to promote Green Procurement, Anritsu will investigate suppliers' environmental activities especially in the following areas (All provided information will be confidential):

- Establishment of environmental management systems
- Implement of product assessment

Energy Conservation

1. Purpose

The purpose of these guidelines is to actively adopt green procurement of products (parts, units, etc.) in order to promote energy conservation (low power consumption) for products developed by Anritsu.

2. Scope

These guidelines shall apply to products (parts, units, etc.) procured by Anritsu.

3. Background on Energy Conservation

Situation in Japan:

Japan's Ministry of Economy, Trade and Industry (METI) incorporated the "top-runner" approach into the Energy Saving Law (*1) based on the Kyoto Protocol (*2) adopted at the 3rd Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change. In addition to its current recommendations, METI revised the contents defining official announcements, directives and penalties (fines) if recommendations are not followed. This indicates that non-top-level products are screened; that manufacturers themselves risk their own survival in strengthening their efforts towards product energy conservation that go beyond current levels; and that market competition is beginning to intensify.

Global Situation:

Europe: Several new laws dealing with the environmental impact of electronic products have been implemented in recent years, and there are many additional new laws being considered. The recently adopted rules (RoHS – restriction of hazardous materials) and WEEE (Waste of electrical and electronic equipment) are designed to reduce hazardous wastes from entering the environment and landfills.

Asia: China will implement a similar program to RoHS (called China RoHS) for a similar purpose.

USA: Many states are considering RoHS and WEEE type laws. Some states will also ban specific materials (perchlorate, mercury).

Globally: There are many calls for environmental programs that many countries have signed up for (Kyoto Protocol, Montreal Protocol, Rio Accord). Although these are voluntary, they signal an increased awareness of the need to reduce pollution and prepare for reduced availability of natural resources. Standards for product energy conservation are defined in the International Energy Star Program (*3) whereby the logo labels are accepted on products meeting these standards.

With this increased environmental awareness, companies are actively and voluntarily setting energy savings targets for products. Anritsu recognizes that energy conservation is a critical factor in product competitiveness and has set power consumption reduction

targets for new products. In order for it to become a reality, drastic steps are needed to sharply reduce the power consumption of new products.

Specifically, adoption of low-voltage, highly integrated electrical circuits, use of a standby mode and other energy saving methods, are being tackled from both the hardware and software aspects. Studies on and techniques for energy saving are being introduced while low power consumption and high-efficiency components are being adopted.

4. Application of Energy Conservation

Anritsu suppliers shall raise the energy-saving performance of products (components, units, etc.). The supplier shall also propose techniques for improving energy-saving designs, components and for improved energy consumption efficiency.

1) Energy Saving Products (Components, Units, etc.)

- Components that reduce power consumption at operation or at standby
- Low-voltage components and components that improve conversion efficiency
  (Example): Low-voltage LSIs, high-efficiency power supplies, etc.
- Single-chip components that integrate peripheral circuit functions
  (Example): CPU with built-in memory, input/output ports and A/D converter, frequency converter (mixer) with built-in logarithmic amplifier, etc.
- Additional components that can measure low-consumption power of circuit block or equipment
  (Example): Components for standby power reduction, etc.

2) Proposals for Techniques to Improve Energy Consumption Efficiency

In order to realize energy savings for products developed by Anritsu, propose design techniques that improve the energy consumption efficiency of procured products (components, units, etc.).

(Example): Motor control with pulse voltage amplitude waveform control [Pulse-Amplitude-Modulation (PAM) system]

In addition, suppliers shall make every effort to:

1) Develop low power versions of their products
2) Improve efficiencies in producing these products (energy conservation in the manufacturing process).
3) Lower the weight of their products to reduce energy used in transportation
4) Support Anritsu in the most efficient use of their products.

Materials (Reduction of substances with environmental impact)

1. Purpose

The purpose is to reduce substances with environmental impact in Anritsu products and in manufacturing of Anritsu products.

2. Scope

The guidelines shall apply to procurement of products (parts, units, materials, and packaging materials) by Anritsu, and substances that are used in manufacturing.

3. Definition of Terms

1) Substances with environmental impact: Substances affecting life, health and the environment defined by this guideline.

2) Contained in Products: Product constituents.

3) Used in Manufacturing: Although not a product constituent, substances used intentionally in manufacturing in order to meet product performance and functions.

4) Banned Substances: Substances that must not be in products.

5) Conditional Banned Substances: Substances that must not be contained in any products, and have the material ban deadline or the exemption set by a law.

6) Controlled Substances: Substances that must have content stated (parts where used, etc.) and managed.

7) Banned Substances in Manufacturing: Substances prohibited from use in manufacturing regardless of presence in products.

8) Suppressed Substances: Substances that must be used as little as possible in manufacturing or where efforts to suppress content should be undertaken regardless of presence in products, and which must have usage (where used, process used, etc.) managed.

4. Designating Substances with Environmental Impact

Table 1. List of Banned Substances

No.	Substance	criteria	Procure Prohibited date
1	Polybrominated Biphenyls (PBBs)	2002/95/EC(EU/RoHS)	Issue date of this guideline
2	Polybrominated Diphenylethers (PBDEs)	2002/95/EC(EU/RoHS), 76/769/EEC(+2003/11/EC)	
3	Polychlorinated Biphenyls (PCBs)	76/769/EEC, The law concerning the examination and regulation of manufacture etc. of chemical substances (class 1 chemical substances): Japanese legislation	
4	Polychlorinated Naphthalenes (more than 3 chlorine atoms)	The law concerning the examination and regulation of manufacture etc. of chemical substances (class 1 chemical substances): Japanese legislation	
5	Shortchain Chlorinated Paraffins (C10-13)	76/769/EEC(+2002/45/EC)	
6	Asbestos	76/769/EEC(+91/659/EEC)	
7	Azocolourants and Azodyes *1	76/769/EEC(+2002/61/EC, +2003/03/EEC)	
8	Ozone Depleting Substances *2	Montreal Protocol	
9	Radioactive Substances	Law for the regulation of nuclear source material, nuclear fuel material and reactors: Japan	
10	Tributyl Tin Oxide (TBTO)	89/677/EEC, 99/51/EEC, The law concerning the examination and regulation of manufacture and use of chemical substances (class 1 chemical substances): Japanese legislation	
11	Tributyl Tin (TBT) and Triphenyl Tin (TPT)	89/677/EEC, 99/51/EEC, The law concerning the examination and regulation of manufacture and use of chemical substances (class 2 chemical substances): Japanese legislation	

*1: Azocolourants and Azodyes that may form specific amines on direct skin c ontact and for extended periods of time are covered. Detailed substance names for specific amines are shown in Table 6.

*2: Ozone-depleting substances are CFCs, halons, carbon tetrachloride, 1,1,1-trichloroethane, HBFCs, HCFCs, bromochloromethane and methyl

bromide, or substance groups covered by the Montreal Protocol.

Table 2. List of Conditional Banned Substances

No.	Substance	criteria	Procure Prohibited date
1	Mercury and Mercury Compounds *3	2002/95/EC(EU/RoHS), 94/62/EEC	June 2006 *3
2	Cadmium and Cadmium Compounds *3		
3	Lead and Lead Compounds *3		
4	Hexavalent Chromium and Hexavalent Chromium Compounds *3		

*3: Governed by RoHS Directive and 94/62/EEC (EU Packaging Directive). Please note that Anritsu's products are in Category 9 of RoHS (Monitoring and Control), and as such have a temporary exemption for EU RoHS. But suppliers are encouraged to develop RoHS compliant versions for all their products.

Table 3. List of Controlled Substances

No.	Substance	criteria	Procure Prohibited Date
1	Arsenic and Arsenic Compounds	The criteria were decided by the discussion done among: JGPSSI (Japan Green Procurement Survey Standardization Initiative), EIA (Electronic Industries Alliance), and EICTA (European Information and Communications Technology Industry Association).	Not Applied
2	Selenium and Selenium Compounds		
3	Antimony and Antimony Compounds		
4	Beryllium and Beryllium Compounds		
5	Bismuth and Bismuth Compounds		
6	Nickel *4		
7	Poly Vinyl Chloride Polymer (PVC)		
8	Brominated Flame Retardants (Except for PBBs and PBDEs)		
9	Phthalates		

*4 Nickel is applicable only to external applications.

Table 4. List of Banned Substances in Manufacturing

No.	Substance	criteria	Procure Prohibited date
1	Chlorofluorocarbons (CFCs) *5	Montreal Protocol	Issue date of this guideline
2	Halons *5		
3	Carbon Tetrachloride *5		
4	1,1,1-Trichloroethane *5		
5	Hydrobromofluorocarbons (HBFCs) *5		
6	Bromochloromethane *5		
7	Methyl Bromide *5		

Table 5. List of Suppressed Substances

No.	Substance	criteria	Procure Prohibited date
1	Hydrochlorofluorocarbons (HCFCs) *5	Montreal Protocol	Not applied
2	Trichloroethylene *5	Water pollution control law: Japan	
3	Tetrachloroethylen *5		
4	Dichloromethane *5		
5	Hydrofluorocarbons (HFCs) *5	Law concerning coping with global warming: Japan	
6	Perfluorocarbons (PFCs) *5		
7	Sulfurhexafluoride (SF6) *5		

*5: These substances in Table 4 and Table 5 apply to Anritsu and their out-sourced manufacturers as substances that must be managed in their manufacturing process.

Table 6. List of specific amines (1/2)

No.	Substance	Chemical Formula	CAS No.
1	4-Aminoazobenzene	$C_{12}H_{11}N_3$	60-09-3
2	o-anisidine	C_7H_9NO	90-04-0
3	2-naphthylamine	$C_{10}H_9N$	91-59-8
4	3,3'-dichlorobenzidine	$C_{12}H_{10}Cl_2N_2$	91-94-1
5	biphenyl-4-ylamine	$C_{12}H_{11}N$	92-67-1
6	Benzidine	$C_{12}H_{12}N_2$	92-87-5
7	o-toluidine	C_7H_9N	95-53-4
8	4-chloro-o-toluidine	C_7H_8ClN	95-69-2
9	2,4-toluenediamine	$C_7H_{10}N_2$	95-80-7
10	o-aminoazotoluene	$C_{14}H_{15}N_3$	97-56-3
11	5-nitro-o-toluidine	$C_7H_8N_2O_2$	99-55-8
12	3,3'-dichloro-4,4'-diaminodiphenylmethane	$C_{13}H_{12}C_{l2}N_2$	101-14-4
13	4,4'-methylenedianiline	$C_{13}H_{14}N_2$	101-77-9
14	4,4'-diaminodiphenylether	$C_{12}H_{12}N_2O$	101-80-4

Table 6. List of specific amines (2/2)

No.	Substance	Chemical Formula	CAS No.
15	4-chloroaniline	C_6H_6ClN	106-47-8
16	3,3'-dimethoxybenzidine	$C_{14}H_{16}N_2O_2$	119-90-4
17	3,3'-dimethylbenzidine	$C_{14}H_{16}N_2$	119-93-7
18	2-methoxy-5-methylaniline	$C_8H_{11}NO$	120-71-8
19	2,4,5-trimethylaniline	$C_9H_{13}N$	137-17-7
20	4,4'-thiodianiline	$C_{12}H_{12}N_2S$	139-65-1
21	4-methoxy-m-phenylenediamine	$C_7H_{10}N_2O$	615-05-4
22	4,4'-methylenedi-o-toluidine	$C_{15}H_{18}N_2$	838-88-0

5. Investigation of Substances with Environmental Impact

Delivered products shall be investigated for substances with environmental impact.

The kind of substances to be investigated is governed by the Joint Industry Guide (JIG) that was adopted by the Japan Green Procurement Survey Standardization Initiative (JGPSSI), in conjunction with the EIA and EICTA. The supplier will be requested to complete a Material Declaration Sheet as supplied by the Anritsu Purchasing Department.

6. Elimination of Prohibited Substances

As for the products that contain Banned Substances (Table 1) and Conditional Banned Substances (Table 2), and use Banned Substances in Manufacturing (Table 4), we do not procure those after the stated effective date as a rule. As for Conditional Banned Substances (Table 2), those are governed by RoHS Directive and EU Packaging Directive.

For Additional Information, please contact:

Anritsu Company
Eric McLean
Director of Quality
emclean@anritsu.com