Anritsu Group
Green Procurement Guidelines

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The 10th Edition

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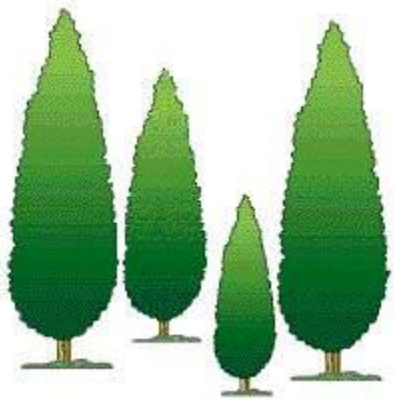


Green Procurement Guidelines

1. Introduction

The Anritsu Group (hereafter Anritsu) promotes procurement of ‘green’ products (components, materials, etc.) used to manufacture environmentally conscious products.

This guideline describes Anritsu’s basic concept with respect to ‘green procurement’ as well as general items that Anritsu and its suppliers shall continue to tackle with regard to environmental problems. In addition, the Anritsu-defined separate specification shall show details that differ with product characteristics.

This guideline shall be revised when necessary in accordance with changes in societal changes and new knowledge.

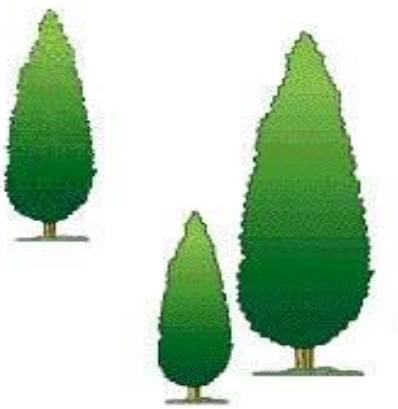
2. Scope

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

3. Definition of Terms

The definition of terms in this guideline is based on the ISO 14001 Environmental Management System and the following.

Product assessment: Evaluating the effect of products on the environment at the product design stage at each step such as parts and materials procurement, manufacturing, logistics, use, recycling, waste disposal, etc., performing necessary design changes for products, and promoting environmentally conscious product development.



4. Operation of Green Procurement

4.1 Supplier Initiatives

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

4.2 Product Assessment Implementation and Disclosure of Information

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. The supplier shall voluntarily implement designs and other functions that reduce the environmental impact.

In addition, the supplier shall be requested to disclose information at the request of Anritsu.

4.2.1 Materials

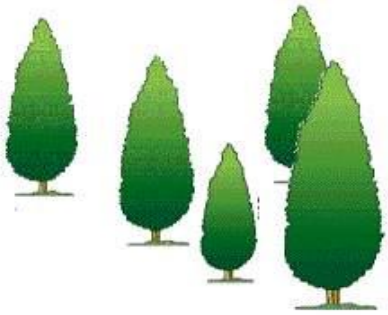
1) Uniformity of Materials
   Integrate product materials as much as possible.
2) Material Selection
   When selecting product materials, avoid composites that are not easily recycled and select materials that are easily recycled.
3) Substances with Environmental Impact
   As a general rule, do not use substances and compounds eliminated by Anritsu, domestic and foreign law, and do not use these substances or compounds in manufacturing. If use of these substances or compounds is unavoidable, the supplier shall clarify the name, contents, and places where used, as well as the environmental impact, etc. The supplier shall propose precautions to prevent leaks, isolation, transportation, recycling, waste treatment methods, etc.

4.2.2 Resource Conservation

1) Use of Recycled Materials
   Recycle materials shall be used for products to the fullest possible extent.
2) Reducing Material Quantities
   The quantities of material used shall be reduced to the fullest possible extent.

4.2.3 Design for Disassembly

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 Marking

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

4.2.5 Energy Conservation

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

4.2.6 Packaging Materials

Packaging materials shall take the fullest possible account of the following items. In addition, packaging materials shall be designed to minimize environmental impact as far as possible.

1) Structure
   Design packaging materials for repeated reuse.
2) Materials
   Use recycled materials for packaging and minimize quantities.
3) Marking
   Mark packaging materials indelibly with the name of the materials.

4.2.7 Easy Treatment for Disposal

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 Recycling/Disposal Method

The supplier shall be requested to create procedures for recycling/disposing of products, and shall explain these procedures when requested by Anritsu.

(Example):

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

4.4 Considerations of biodiversity conservation

It is essential to work with supply chains to advance initiatives for promoting biodiversity conservation. The supplier shall be requested to biodiversity conservation activities with product life cycle from procurement of materials, designing, manufacturing and distribution, through to use and end-of life.

5. Investigation of Suppliers' environmental activity

In order to promote Green Procurement, we will investigate suppliers' environmental activities especially in the following items:

1) Establishment of environmental management systems
2) Implement of product assessment
3) Implement of the management of chemical substances in product

*All provided information will be confidential.

Green Procurement Guidelines
- 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 so as to contribute to global warming countermeasures.

2. Scope

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

3. Background on Energy Conservation

Anritsu recognizes that energy conservation is a critical factor in product competitiveness and has set power consumption reduction targets for products. In order 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, standby mode, etc., is 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. Operation of Energy Conservation

The supplier shall raise the energy-saving performance of products (components, units, etc.). The supplier shall also propose techniques for improving energy-saving circuit configured components and 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 follow the main points of countermeasures to global warming, and shall also consider energy conservation in manufacturing.

Green Procurement Guidelines
- Substances with environmental impact -

1. Purpose

The purpose is to restrict 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. Substances with Environmental Impact

Table 1. List of Banned Substances

No.	Substance	Threshold	Reportable Application(s)
1	Polybrominated Biphenyls (PBBs)	0.1% by weight (1000 ppm) of homogeneous materials	All
2	Polybrominated Diphenylethers (PBDEs)	Intentionally added or 0.1% by weight (1000 ppm) of homogeneous materials	All
3	Polychlorinated Biphenyls (PCBs)	Intentionally added	All
4	Polychlorinated Terphenyls (PCTs)	0.05% by weight (50 ppm) of homogeneous materials	All
5	Polychlorinated Naphthalenes (more than 3 chlorine atoms)	Intentionally added	All
6	Shortchain Chlorinated Paraffins (C10-13)	Intentionally added	All
7	Tributyl Tin Oxide (TBTO)	Intentionally added	All
8	Tri-substituted organostannic compounds	Intentionally added or 0.1% by weight (1000 ppm) of tin in the product	All
9	Perfluorooctane sulfonate (PFOS)	・Intentionally added or 0.1% by weight (1000 ppm) of homogeneous materials ・Containing above 1μg/m2 of PFOS in cladding for textiles or other coated material	All
10	Asbestos	Intentionally added	All
11	Azocolourants and azodyes which form certain aromatic amines *1	Intentionally added or 0.003% by weight (30 ppm) of the textile/leather product	Textiles and leather
12	Ozone Depleting Substances *2	Intentionally added	All
13	Radioactive Substances	Intentionally added	All
14	Formaldehyde	0.0075%by weight (75 ppm) of textile product	Textiles
		Addition intentional	Composite wood (plywood, particle board, MDF) products or Components
15	Phenol,2-(2H-benzotriazol-2-yl)-4, 6-bis(1,1-dimethylethyl) (CAS No. 3846-71-7)	Intentionally added	All
16	Dimethyl fumarate (CAS No. 624-49-7)	0.00001% by weight (0.1 ppm) of the product	All
17	Hexabromocyclododecane (HBCDD) and all major diastereoisomers	Intentionally added	All

*1: Azocolourants and Azodyes that may form specific amines on direct skin contact and for extended periods of time are covered. The detailed material name of specific amine is based on JIG (Joint Industry Guidelines) that JGPSSI (Japan Green Procurement Survey Standardization Initiative) introduced.

*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 and Halon-1202, ethyl bromide, 1-Bromopropane, Trifluoroiodomethane, Chloromethane.

Table 2. List of Conditional Banned Substances

No.	Substance	Threshold	Reportable Application(s)
1	Cadmium and Cadmium Compounds *3	0.01% by weight (100 ppm) of homogeneous materials	All except the exemptions *4
2	Hexavalent Chromium Compounds *3	0.1% by weight (1000 ppm) of homogeneous materials	All except the exemptions *4
3	Lead and Lead Compounds *3	0.1% by weight (1000 ppm) of homogeneous materials	All except the exemptions *4
4	Mercury and Mercury Compounds *3	Intentionally added or 0.1% by weight (1000 ppm) of homogeneous materials	All except the exemptions *4
5	Cobalt dichloride (CoCl2)	Intentionally added	The indicator of desiccating a gents
6	Fluorinated greenhouse gases (PFC, SF6, HFC)	Intentionally added	Use of AnnexⅡ of EU rule No842/2006
7	Dibutyltin (DBT) compounds *5	0.1% by weight (1000 ppm) of tin in the product	All
8	Dioctyltin (DOT) compounds *5	0.1% by weight (1000 ppm) of tin in the product	・textile and leather articles intended to come into contact with the skin, ・two-component room temperature vulcanisation moulding kits (RTV-2 moulding kits)

*3: The packing materials for products delivered by Anritsu must not contain a total concentration of m ercury, cadmium, lead and hexavalent chrome that exceeds 100 ppm.

*4: Governed by RoHS Directive, and 2006/66/EC (EU Battery Directive). For details, please refer to th e "Manual for Substances with Environmental Impact" (Document No.; JE-P1AB06021).

*5: The substances of No7 and 8 are restricted from January, 2012 in EU. For details, please refer to the "Manual for Substances with Environmental Impact" (Document No.: JE-P1AB06021).

Table 3. List of Controlled Substances

No.	Substance	Reporting level	Reportable Application(s)
1	Nickel	Intentionally added	All, where prolonged skin contact is expected
2	Beryllium Oxide (BeO) (CAS No. 1304-56-9)	0.1 % by weight (1000 ppm) of the product	All
3	Brominated flame retardants (other than PBBs,PBDEs, or HBCDD)	・0.1% total bromine content by weight(1 000 ppm) in the plastic material ・0.09% total bromine content by weight (900 ppm) in the laminate	・Plastic ・Printed wiring board laminate
4	Chlorinated flame retardants	・0.1% total chlorine content by weight (1000 ppm) in the plastic material ・0.09% total chlorine content by weight (900 ppm) in the laminate	・Plastic ・Printed wiring board laminate
5	Perchlorates	0.0000006 % by weight (0.006 ppm) of the product	All
6	Polyvinyl Chloride (PVC) & PVC Copolymers	0.1% total chlorine content by weight (1 000 ppm) in the plastic material	Plastic materials except printed wiring board laminates
7	Selected Phthalates Group 1 (BBP, DBP, DEHP) *6	0.1% by weight(1000 ppm) in plasticized material	All
8	Selected Phthalates Group 2 (DIDP, DINP, DNOP) *6	0.1% by weight(1000 ppm) in plasticized material	All
9	Di-isodecyl phthalate (DIDP)	Intentionally added	All
10	Di-n-hexyl Phthalate (DnHP)	Intentionally added	All
11	SVHC of the REACH *7	0.1 % by weight (1000 ppm) of the product	All

*6: As for No. 7, 8 threshold, a value of the content of the quality of each three lines of a linked poem in total is 1,000ppm

*7:About No. 11 SVHC, please refer to the "Manual for Substances with Environmental Impact" (Document No.: JE-P1AB06021).

Table 4. List of Banned Substances in Manufacturing

No.	Substance	Criteria
1	Chlorofluorocarbons (CFCs)	Montreal Protocol
2	Halons	
3	Carbon tetrachloride	
4	1,1,1-Trichloroethane	
5	Hydrobromofluorocarbons (HBFCs)	
6	Bromochloromethane	
7	Methyl bromide	

Table 5. List of Suppressed Substances

No.	Substance	Criteria
1	Hydrochlorofluorocarbons (HCFCs) *8	Montreal Protocol
2	Trichloroethylene *8	Waste disposal and public Cleansing Law: Japan, Water pollution control Law: Japan
3	Tetrachloroethylen *8	
4	Dichloromethane *8	
5	Hydrofluorocarbons (HFCs) *8	Law concerning the promotion of the measures to cope with global warming: Japan
6	Perfluorocarbons (PFCs) *8	
7	Sulfurhexafluoride (SF6) *8	

*8: These substances in Table 5 are applied to only Anritsu and outsourced manufacturers as substances that must be managed in manufacturing excluding for purchased parts.

5. Investigation of Substances with Environmental Impact

Delivered products shall be investigated for substances with environmental impact.

What kind of substances should be investigated is governed by Joint Industry Guide (JIG) that was adopted by the Japan Green Procurement Survey Standardization Initiative (JGPSSI). The survey response format set by JGPSSI shall be used. In addition, the activity of JGPSSI is succeeded by the Japanese VT62474 of a sectional committee within the IEC/TC111's Japanese committee.

Information about the survey response format is listed on the Japanese VT62474 website. (http://www.vt62474.jp/tool_v431_eg.html)

6. Elimination of Prohibited Substances

If Anritsu designates parts and components as the substances with environmental impact in the drawing like "RoHS" or "RoHS compliant", Anritsu does not procure any parts and components that contain Banned Substances (Table1) and Conditional Banned Substances (Table2). For details of the substances with environmental impact, refer to the "Manual for Substances with Environmental Impact" (Document No.: JE-P1AB06021).

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