

## CASIO Group Guidance to Green Procurement

- For comprehension and smooth application of CASIO group green procurement program -



This logo symbolizes the important environmental activities of the Casio Group for the 21st century.

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**CASIO COMPUTER CO.,LTD.**



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# Chapter 1 Application of CASIO Group Green Procurement Program

## [1] Application of green procurement

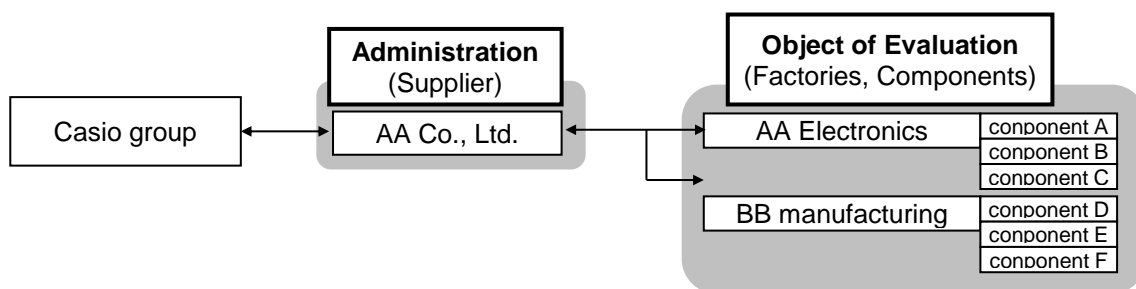
### 1) Articles as objects of green procurement

Articles as objects of green procurement are components, products and materials constituting CASIO's products. Auxiliary materials are also within the range of this program with exclusions of office supplies and other appliances and facilities in the office.

### 2) Working desk and object of assessment

Vendors in direct business relation to CASIO (addressee of the order slip of CASIO) are in charge of inquiries and replies of factory assessment (green factory assessment) and components assessment (green components assessment).

When a vendor has a plurality of factories, assessments for respective factories are requested.



**[2] Concept of Assessment and procurement priority**

CASIO Group Green Procurement is based on the concept that products with less burden on the environment is preferentially purchased from factories considering the environment.

The components with higher grade assessment (green components assessment) will be purchased from the factory with higher level assessment (green factory assessment).

1) Green factory assessment

<b>SV</b>	100 point	} <b>Green factory:</b> <b>preferential purchase</b> Improvement are required Suspension of purchase
<b>AV</b>	70-90 point	
<b>BV</b>	30-60 point	
<b>CV</b>	0-20 point	

Self-assessment of the environment management program of the parts factory according to ISO 14001 by the vendors is requested based on the green procurement standard. Vendors are classified into SV to CV ranks (V means a vendor) based on the assessment point.

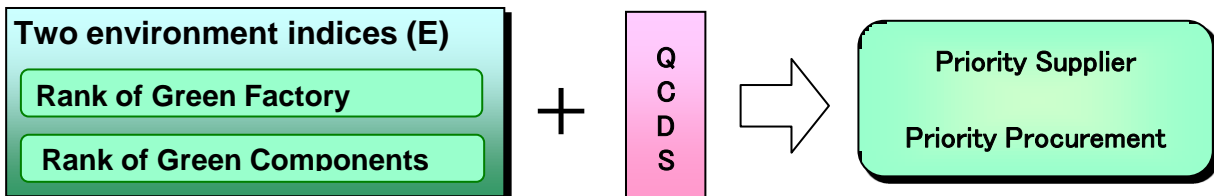
Vendors classified into the ranks SV and AV are defined as "Green Factory", and parts are preferentially purchased from the factory.

2) Assessment of green components

Assessment and Preferential Procurement on Green Components will be determined, for the time being, in terms of content of the chemical substances, as the first priority, and Green Component Evaluation ranking, as the second priority.

3) Total assessment including environment index

The environment index (E) is defined from the assessment of "green factory rank" and "green parts rank". Vendor priority and procurement priority are totally and objectively determined from the sum of usually defined indices [quality (Q), cost (C), delivery time (D) and service (S)] and environment index (E).



## Chapter 2 Request for Suppliers

### [1] Assessment of factory

CASIO group requests the factories manufacturing the products delivered to CASIO to introduce an environment management system according to ISO 14001. The factories as CASIO procurement priority are required to acquire SV rank or AV rank of the green factory assessment with assessment of 70 points or more in the following assessment items.

- Factory that has acquired official approval of ISO 14001, or promoting acquisition of ISO 14001

<b>(a) Acquired</b>	YES / NO <b>[100 / 0 point]</b>
<b>(b) Programmed to acquire within 1 year</b>	<b>[90 / 0 point]</b>

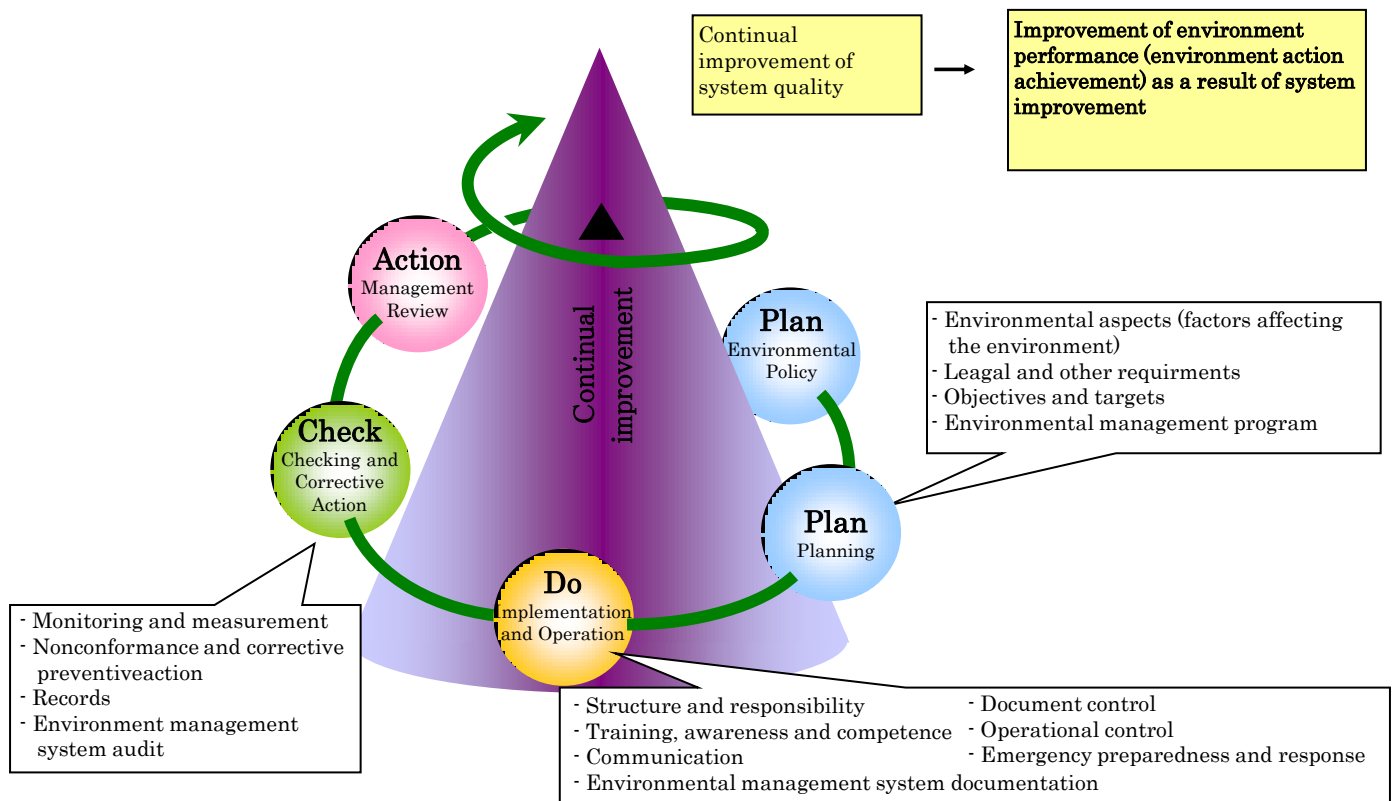
Reply whether official approval of ISO 14001 has been acquired, or is programmed to acquire within 1 year. The factory is assessed to be SV and AV rank, respectively, when the reply corresponds to (a) rank and (b) rank.

#### ISO 14001

ISO 14001 is provided as a standard of guideline of specification and guidance of the environment management system. The environment management system is, in brief, "construction and procedure of works considering the environment". For introducing the environment management system in the company, required items of the ISO 14001 standard (see the drawing below) should be thoroughly comprehended in order to construct the system according to the requirement of ISO 14001.

Principal featured of ISO 14001 are as follows:

- Applicable to any organization
- Esteems to observe laws
- Intend to improve environment performance (environment action achievement) by continuously improving environment protection systems
- Seeking to prevent pollution of environment and to reduce environmental burden
- Environment protection program should be open to public
- All employees should be involved in the program
- Basic concept of plan - do - check - action (PDCA cycle)



Required Item of Environment Management System

● **Factory under voluntary action**

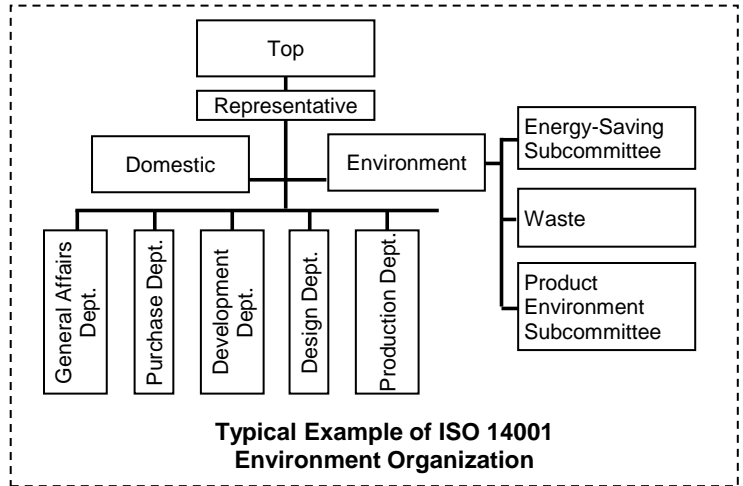
Factories under the voluntary action of the environment management without acquiring official approval of ISO 14001 are requested to reply the assessment items (c) to (j). The factory that has acquired assessment points of 70 or more by attaining these items is classified as the factory of procurement priority by CASIO. The content of each item is desirably in accordance with the requirements of ISO 14001.

<b>(c) Environment protection committee is organized, and the organization system is clear.</b>	<b>YES / NO [10 / 0 point]</b>
<b>(d) Top manager is involved in the organization</b>	<b>[10 / 0 point]</b>

For effective achievement of the environment management system, a list defining the role, responsibility and competence of each member is arranged, and all members should be informed of the system.

Participation of top manager is crucial for the environment protection activity as a guideline of the company.

It is desirable that the top manager occupy the most responsible position in the organization.



<b>(e) Environment guide line and environment action program have been established and practically applied.</b>	<b>YES / NO [10 / 0 point]</b>
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The top manager determines the environment action theme in the environment guide line. The top manager should understand the environmental burden caused by the business activity of the company, and the action should be determined in order to reduce the burden. All employees should be informed of the environment action program, and the program is desirably released in the public.

**Demands of ISO 14001 on the Environmental Policy**

The top manager determines the following Environment Policy, and ensures the following items,

- The Policy is in accordance with the activity of the organization, characteristics and scale of the product and service, and the effect on the environment.
- The Policy includes promise of continuous improvements of the organization and prevention of environment pollution.
- The Policy includes promise of observation of environment related law regulations, and of the demands that have been accepted by the organization.
- The Policy clarifies that establishment and refreshment of environmental objects and targets are possible.
- The Policy is committed to a document, and all the employee is informed of the document which is practiced and maintained.
- The Policy is available to the public.

**Environmental Policy (Example)**

XX factory of YY company recognizes that preservation of the global environment is one of the most important problems common to all peoples, and establishes a basic concept "better business activity by preserving the natural environment considering the environment".

XX factory performs the following environment management as follows based on the basic environment guideline of ZZ group considering that the factory produces AA apparatus, and various instruments such as BB and CC.

1. The environmental side related to the activity, products and service of XX factory is always recognized, and prevention of environment pollution is promoted while the environment management system is always improved.
2. Voluntary standards are provided and managed in order to observe regressions of the environment-related law, and other regulations and agreements related to the activity, products and service of XX factory.
3. The following items are provided as environment management priority of the affairs related to the activity, products and service of XX factory.
  - 1) Reduction and recycle of package materials and plastic refuses as the factory waste
  - 2) Proper control and reduction of raw materials and chemicals such as organic solvents and solder used i n the production process
  - 3) Reduction of consumed electricity as a most part of the consumed energy
  - 4) Maintenance and control of effluent from the factory
  - 5) Consideration of environment problems in the steps of development and design of the product
  - 6) Maintenance and improvement of green environment
4. Environmental objects and targets are provided for attaining the environment guideline, and the environment management is promoted by all the sections and employees including subsidiary companies working in our factory.
5. All the divisions and employees are informed of this environment guideline, which is also open to the public.

Date  
YY Company XX Factory  
Factory Manager ABC XYZ

The environment action program is provided for determining specific object based on the environment guideline of the company including an achievement program.

The target year and numerical target are clarified. Data of past environmental burden should be recognized for establishing the program. While the environment action program as used herein means, the action program of the entire company and is a little different from the object and target require in ISO 14001, it is of no problem to provide the object and target based on ISO.

**Environment Action Program (Example)**

1. The amount of landfill of the waste is reduced to 50% in 2005 relative to the amount in 2000.
2. 10% of the amount of consumed electricity per sales is reduced in 2005 relative to 2000.
3. Use of trichloroethylene (organic solvent)is abolished before 2005.
4. Use of lead solder is abolished before 2006.
5. 10% of waiting electricity of new products is reduced relative to usual models.
6. Use of styrol foam in package materials is abolished before 2004.



YES / NO

**(f) Environment related laws are observed, and are periodically reviewed [20 / 0 point]**

Check if corresponding environment related laws are observed. New environment related laws are being registered and former laws are being revised in recent years. These trends are supposed to continue hereinafter. Always try to review the laws. The environment protection system should be able to supervise that the business activity of the company observes related law regulations.

YES / NO  
[10 / 0 point]

**(g) Harmful substances that cause destruction of ozone sphere, pollution of soil and global greenhouse effect are not used in the production process**

Check the use of harmful substances in the table below, if any, in the production process. Try to control and reduce the amount of use and release when used, and to use substitutes thereof.

*Note : If the harmful substances used in the production process and discharged in the environment is regulated. Furon as a refrigerant in refrigerators and halon in fire extinguishers are out f the regulation.*

Harmful substance	Influence on environment
CFCs	Deplete ozone layer
1,1,1-trichloroethane	
carbon tetrachloride	
Halons	
HCFCs	
Trichloroethylene	pollution of air and soil (harmful to human body)
Tetrachloroethylene	
Methyl chloride	
Hexafluorosulfur	global greenhouse effect
HFCs	
PFCs	

YES / NO  
[20 / 0 point]

**(h) The factory has not been under guidance of and punishment by supervision government offices in past five years.**

Confirm that the factory has not been under guidance of and punishment by local government offices due to violation of environment related laws in past five years.

**(i) Environment protection activity of the company is able to open to the public.**

YES / NO  
[10 / 0 point]

Confirm the quantitative environment burden related to the business of the company, and activity for reducing the environment burden. The content should be in conformity with the environment guideline and environment activity program (object and target required by ISO 14001). The confirmed environment performance is desirably able to open to the public in accordance with request by public.

**Environment maintenance activity report (Example)**

(the following items are reported together with the environment guideline and environment activity program)

● Environmental Performance

		2001	2002	2003
CO2 emission	Total emission	--- (t-CO <sub>2</sub> )	--- (t-CO <sub>2</sub> )	--- (t-CO <sub>2</sub> )
	Total emission per production value	--- (t-CO <sub>2</sub> /USD)	--- (t-CO <sub>2</sub> /USD)	--- (t-CO <sub>2</sub> /USD)
Waste	Total discharge	--- (t)	--- (t)	--- (t)
	Landfilled value	--- (t)	--- (t)	--- (t)
	Total discharge per production value	--- (t/USD)	--- (t/USD)	--- (t/USD)
Water Consumption		--- (m <sup>3</sup> )	--- (m <sup>3</sup> )	--- (m <sup>3</sup> )
Chemical substances Consumption	Trichloroethylene	--- (t)	--- (t)	--- (t)
	Lead solder	--- (t)	--- (t)	--- (t)

Note : CO2 emission is generated by consumption of electricity and fuel (gasoline, kerosine and fuel gas).

● Environment burden reducing activity

◆ Energy saving

- Proper air conditioning (cooling at about 27° C, warming at about 22° C) is enforced.
- Energy-saving air conditioners are introduced, and output is controlled by inverters.
- Load and transformers are shut down when electricity is not used.

◆ Reduction of industrial waste discharge/landfill

- Package materials are recycles.
- Waste plastics and glasses are retrieved after classification for recycling.

◆ Avoid to use harmful chemicals

- Trichloroethylene as a chlorinated organic solvent is replaced with other cleaning solvents such as ethanol when substitution is possible.
- Use of lead-free solder is being studied.

◆ Prevention of pollution and observation of law regulation

- Waste gas/waste water are periodically measured. Voluntary standards stricter than law regulations are determined, and observation of the standard is watched.

**(j) Employees are enlightened on environment protection.**

YES / NO  
[10 / 0 point]

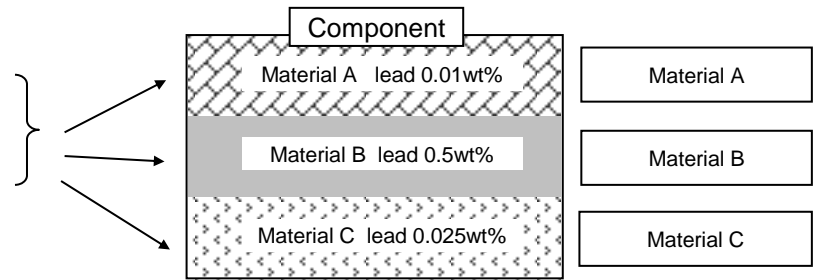
Participation of all employees is important for applying the environment management system. Educate all members of the organization on the environmental burden caused by business activities, practical action for surveillance and reduction of the environmental burden, and environment guideline and environment action program (object and target based on ISO 14001).

[2] Concept of survey of chemical substances

[2-1] Unit of survey of chemical substances

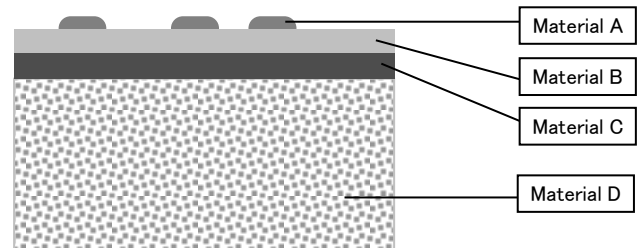
[Survey in CASIO Green Procurement]

Survey and reply of the content (wt%: percent by weight) of chemicals for every "homogeneous material" constituting the parts are requested in the revised CASIO Green Procurement.



The values that are surveyed and replied are the contents of chemicals (in wt% unit) per each "homogeneous material" constituting the parts delivered to CASIO.

A material in which substances are homogeneously mixed is considered to be a "homogeneous material". For example, materials A to D are considered to be "homogeneous materials", respectively in the example below.



Plating films and coating films are also considered to be independent materials, respectively. Oxide films and nitride films formed on the surface of metals are considered to be the same materials as the substrate metals.

A threshold level is defined for each chemical according to the law regulation.

Guarantees are requested with respect to prohibited chemicals that the contents thereof do not exceed the threshold.

[2-2] Survey of chemicals and application

(1) Content and threshold

A threshold defining the maximum content is provided for every chemicals (practical threshold level is described in Appendix 1 of Standard). Since survey and guarantee of all these threshold level are so time-consuming, CASIO Green Procurement recommends as follows:

Even though the concentration of the substances is less than the threshold, report the concentration of intentionally added chemical substances if any. Report is not required when there are no intentionally added chemical substances and the concentration of the chemical substances is evidently less than the threshold.

We request use of the regulated substances as small as possible in the materials constituting the parts, and in the materials used in the production process. Survey of the content (wt%) of the chemicals is necessary when the regulated chemicals are inevitably contained.

(2) Homogeneous material

The homogeneous material is defined to be a mixture of homogeneously mixed materials, and any materials should be independently surveyed even though the amount of use is quite small. Homogeneous materials constituting the parts are so diverse in electronic parts that the survey units tend to be ambiguous. CASIO Green Procurement request survey and reply with reference to the example below according to the concept of "constituting unit" by JGPSSI (Japan Green Procurement Survey Standardization Initiative).

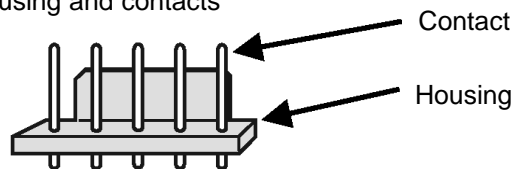
The material is requested to be divided as fine as possible when the material contains the regulated chemicals. The materials used at the outermost layer in the CASIO final product is requested to be independently surveyed without fail.

**Component Part Example**

\*Source: JGPSSI "Practice of Green Procurement"

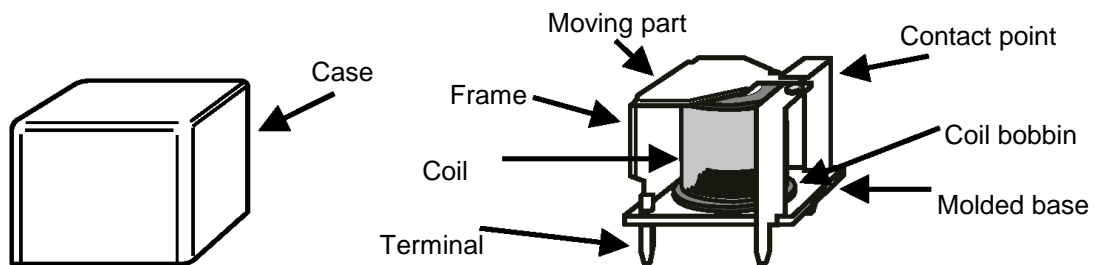
**[Component Part Example 1] Connectors**

Component parts: Housing and contacts



**[Component Part Example 2] Switches, relays, and other parts with mechanical components**

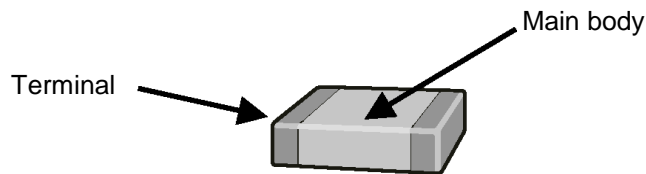
Component parts: Part case (molded plastic etc.), metal components (lever, frame, terminals, etc.), moving part (contact points, etc.)



**\* Please pay particular attention to special metals (alloys) used for plastic flame retardants, and electrical characteristics and lubrication of contact points.**

**[Component Part Example 3] Surface-mounted chip parts**

Component parts: Terminal and main body

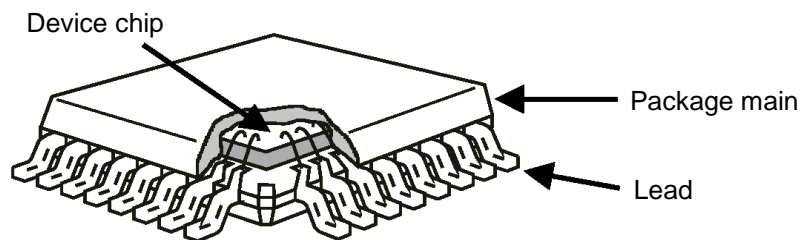


**\*The main body of the part is made of multiple materials and the substance concerned is present, break it down.**

**e.g.) Part: "main body" → Part: "ceramic" or "internal electrode"**

**[Component Part Example 4] Semiconductor devices**

Component parts: Lead terminal (lead frame, etc.), package main body (molded plastic, etc.), and device chip

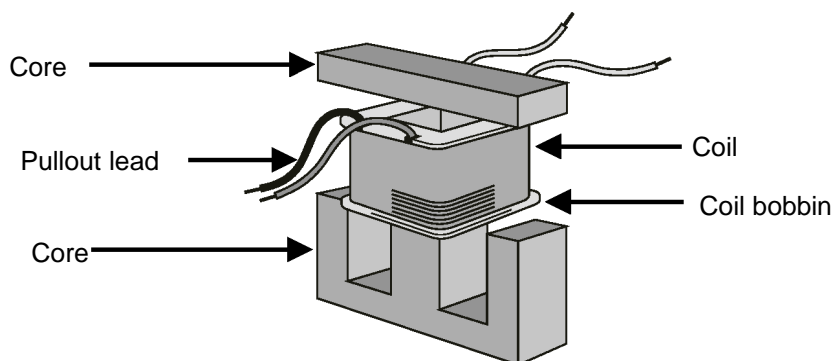


**\* Please pay particular attention to any flame retardants in the package plastic, and the lead material and treatment.**

**\* Make the response concerning the device chip as best you can.**

**[Component Part Example 5] Transformers and inductors**

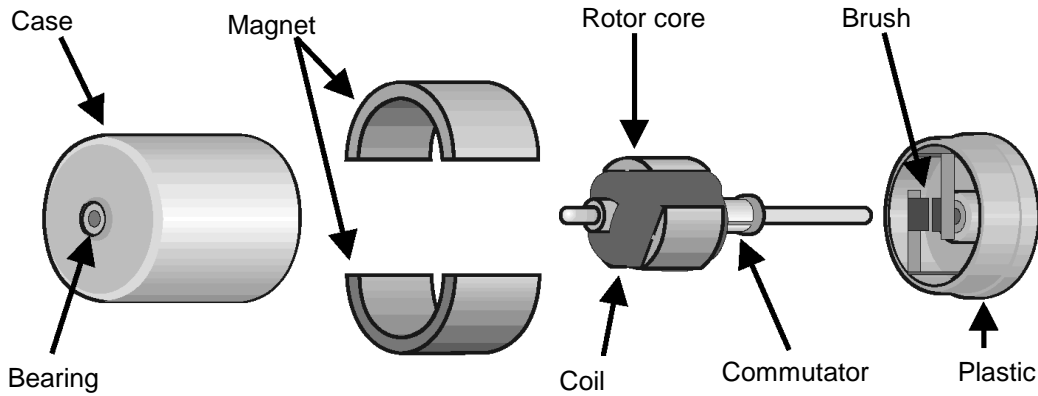
Component parts: Core, coil, bobbin, lead wire, insulator, case frame, etc.



**\* Pay particular attention to flame retardants in plastic materials or insulating parts, impregnant in the coil, PVCs or flame retardants in the lead wire.**

**[Component Part Example 6] DC motors**

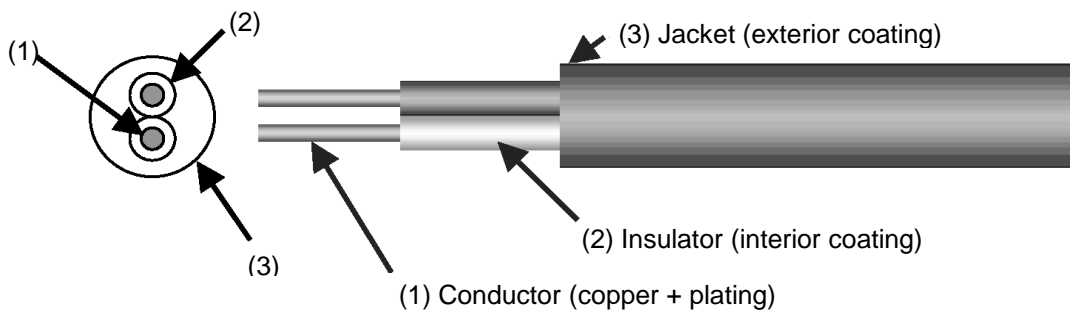
Component parts: Part case (molded plastic, etc.), metal parts (shaft, rotor core, terminal, frame, etc.), brush, magnet, coil, and other



**\* Pay particular attention to special metals (alloys) used for flame retardants in plastic, and electrical characteristics and lubrication in commutators, as well as grease in bearings.**

**[Component Part Example 7] Electrical cable (power cord)**

Component parts: Conductor (copper + plating), insulator (interior coating), and jacket (exterior coating)



### [2-3] Outline of law regulation of chemical substances

Components assessment in CASIO Green Procurement is based on the law regulations in the abroad. Comprehension and application of this assessment is appreciated since it is essential for observing the laws.

#### (1) No use of ozone sphere destructive substance (Class I)

Labeling is obliged to the parts using the Ozone Depleting Substances (Class I) in the production process in the US air cleaning law.

*Note: Refer to page 18-19 in Standard with respect to details of the Ozone Depleting Substances (Class I). The Ozone Depleting Substances used in the production process and discharged in the environment is regulated. Furon as a refrigerant in refrigerators and halon in fire extinguishers are out f the regulation.*

#### (2) Survey of mercury content

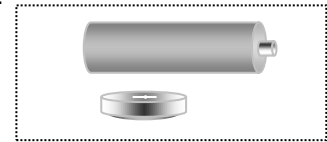
In Connecticut State, USA, register of rough estimate of the mercury content, and notification of retrieval and recycling to consumers are obliged in the products containing purposely added mercury.

#### (3) Heavy metals in battery

The information below shows the standards according to region for heavy metal levels in batteries. Batteries containing levels of heavy metals that exceed these standards cannot be sold.

##### EU batteries directive (2006/66/EC)

Mercury: 0.0005% of the battery weight  
For button-type cells, the level is 2% of the battery weight.  
Cadmium: 0.002% of the battery weight



##### U.S. Mercury-Containing and Rechargeable Battery Management Act

Mercury: Prohibited in alkaline and manganese batteries  
Less than 25 mg in button-type batteries

##### Korean battery regulations (dry cell batteries and some secondary batteries)

Mercury: 0.0001% of the battery weight  
Cadmium: 0.0001% of the battery weight  
Lead: 0.4% of the battery weight

##### Argentine battery regulations (primary batteries)

Mercury: 0.0005% of the battery cell weight  
For button-type cells, the level is 2% of the battery weight.  
Cadmium: 0.015% of the battery weight  
Lead: 0.2% of the battery weight

##### Brazilian battery regulations (dry cell batteries and some secondary batteries. Excludes button-type batteries.)

Mercury: 0.0005% of the battery weight  
For button-type cells, the level is 2% of the battery weight.  
Cadmium: 0.002% of the battery weight  
Lead: 0.1% of the battery weight

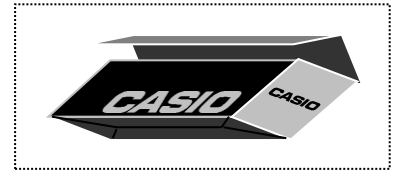
##### Paraguay battery regulations (Manganese and alkaline batteries.)

Mercury: 0.010% of the battery weight. Also includes button-type batteries.)  
Cadmium: 0.015% of the battery weight  
Lead: 0.2% of the battery weight

**(4) Heavy metals contained in packaging components**

The heavy metals contained in the package materials are regulated as follows in Europe Packaging components Disposal Instruction (94/62/EC).

- The total weight of lead, mercury, six-valent chromium and cadmium should not exceed 100 ppm (0.01%) of the weight of the package material.



Since the package material is defined to be all the package materials including those for civilian life uses and industrial uses, the package materials of the parts delivered to EU for maintenance in addition to the package materials of the CASIO final products are obliged to observe this instruction.

The same regulation is applied in some states in USA.

However, under Casio Green Procurement, the threshold has previously been calculated using the entire amount of packaging materials as the denominator. But as of edition 7, the inclusion rate for each homogeneous material is also applied to packaging material uses. The inclusion rate for packaging materials is taken as the weight of the 4 substances (total value) as a proportion of the weight of each of the homogeneous material of the packaging material (polyethylene sheet portion, ink, adhesive, etc.).

**(5) Regulation of chemicals contained in the product**

**i) RoHS Directive (2011/65/EU)**

Electric and electronic appliances sold in the market is prohibited to contain the following chemicals. The RoHS Instruction is not applied to batteries, instead EU Battery Directive is applied.

**<RoHS Directive: abstract of requirements>**

Prohibited Substances	Prohibited use	Threshold
Lead	All materials constituting the electric and electronic appliances (exempt high-melting point solder for internal connection of components containing 85% or more of lead, lead in electronic ceramic components, lead in the glass in electronic components (including fluorescent tube and cathode ray tube), less than 0.35 wt% of lead in steel materials, less than 0.4 wt% of lead in aluminum alloy, less than 4 wt% of lead in copper alloy)	0.1wt% per homogenous material
Mercury	All materials constituting the electric and electronic appliances (exempt less than 5 mg of mercury per one small fluorescent light (such as back-light of liquid crystal), mercury in small size fluorescent lamp and linear fluorescent lamp)	
Hexavalent chromium	All materials constituting the electric and electronic appliances (no exemption corresponding to that in CASIO product)	
PBB	All materials constituting the electric and electronic appliances (no exemption)	
PBDE	All materials constituting the electric and electronic appliances (no exemption)	0.01wt% per homogenous material
Cadmium	All materials constituting the electric and electronic appliances (exempt the components for use in contact plating within the electronic appliances and having no substitutes)	



ii) REACH Regulation Annex XVII

The EU REACH Regulation require the registration, evaluation, authorization and restriction of chemical substances. In Annex XVII, restrictions were set on the use of many chemical substances.

*Note: Chemical substances are added to Annex XVII of REACH Regulation and reviewed as needed. The table below summarizes the content that is relevant to Casio products as of September 2011. It does not show all the substances.*

<REACH Regulation Annex XVII: abstract of requirements>

Prohibited Substances	Prohibited use	Threshold
Asbestos fiber	Fiber and products containing the fibers	Intentionally added
Arsenic	Substances and preparations as antiseptics of wood	Intentionally added
Pentachlorophenol	Substances and preparations sold in the market (*1)	0.1wt% (*1)
Cadmium	Plastic additives, paint and metal surface treatment (*2)	0.01wt% (*2)
Nickel	Use in direct contact with skin continuously	regulation of Concentration by dissolution test
Creosote	Wooden processed product	Intentionally added
Azo colourants	Use in direct contact with skin continuously	0.003% (30ppm)
Tri-substituted Organostannic Compounds	Products and components on the market	0.1% equivalent tin weight
Dibutyltin (DBT) compounds	Products and components on the market (excluding exempted applications)	0.1% equivalent tin weight
Diocetyl tin (DOT) compound	Uses involving direct contact with the skin	0.1% equivalent tin weight

(\*1) German domestic law regulates the concentration of pentachlorophenol at the portion treated with pentachlorophenol to be 5 ppm or less.

(\*2) Netherlands domestic law prohibits cadmium in fluorescent lamps and photographic films in addition to the uses regulated in 76/769/EEC. The threshold level of cadmium is 0.0075 wt% (75 ppm) in Denmark domestic law.

(\*3) Netherlands domestic law prohibits use of chlorinated paraffin as plasticizers in pants and sealant, and as flame retardants in rubbers and fabrics.

iii) Regulation of formaldehyde (formalin)

Chemicals regulation rules in German, Denmark and California state regulate the use of formaldehyde (formalin) in processed wooden products. The regulation level is defined depending on the concentration of formalin issue.

iv) Chemical substance assessment regulation law in Japan

Chemical substance assessment regulation law in Japan defines as follows.

< Chemical substance assessment regulation law; abstract >

Classification	Chemical substances	Legal Obligation
First class specified chemical substance	PCB	Need of permission for production and import (substantially prohibited)
	polychlorinated naphthalene	
	bis(tributyltin)oxide	
	2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole	
	others	

## References

- Environment Activity Assessment Program, Ministry of Environment, September, 1999
- ISO14001 Environment Management System; Commentary and Q&A, JACO, April, 1999
- Environment Management System, Japan Small and Medium Enterprise Corporation, September, 2000
- Practice of Green Procurement, Japan Green Procurement Survey Standardization Initiative, September, 2003

Contact below for practice of CASIO Green Procurement,

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Manufacturing and Purchasing Unit

[casio\\_green\\_procurement@casio.co.jp](mailto:casio_green_procurement@casio.co.jp)