

Green Procurement Guideline (for suppliers)

(Ver. 2.0)

Establishment: 20th June 2005

Revision: 27th August 2010

Canare Electric Co., Ltd.

1. Purpose

Canare Electric Co., Ltd. has been addressing green procurement under its environmental philosophy : “we recognize protecting natural environment is our human’s mission and strive to preserve and improve the environment through our business activities”.

This guideline describes the standard and the evaluation method for our green procurement. This purpose is for our company to promote the green procurement in cooperation with our suppliers in order to stabilize and enhance product environment and quality.

2. Scope

2.1. Target product range

- 1) Products designed, manufactured and sold by Canare group
- 2) Products designed and sold by Canare group through commissioning manufacture
- 3) Products sold with Canare brand through Canare group’s commissioning design, development and manufacture
- 4) Products mediated for sales by Canare group

2.2. Target parts, materials, devices, etc.

Parts, materials, devices, etc. used in target products defined in the above 2.1 are subject to this procedure.

- 1) Parts and materials which configure cables, connectors and harness products.
- 2) Electric/electronic parts, semiconductor devices, print circuit boards, mechanism element, etc. which configure electronic products.
- 3) Soldering materials, tape, adhesive agent and printed materials, and other ancillary sub-materials.
- 4) AC adapters, screws and other accessories needed to operate devices.
- 5) Packaging materials used to protect products during transportation.

3. Environmental requirements to items

Environmental requirements to items have been established based on national/international environmental laws and regulations and the standards defined by our customer assembly manufacturers.

4. Definition of terms

- 1) Item
It refers to a product and a part, material, and device configuring a product that is delivered by our supplier.
- 2) Controlled environmental substance
Among those contained in parts, devices, materials, etc., a substance that is regarded as having significant environmental impact on the global environment and human body.

3) Prohibited substance

A substance, the use of which is currently prohibited by law, regulations, etc., and this procedure.

4) Controlled substance

A substance, the use of which is not prohibited or restricted, however, has to be controlled properly in consideration of environmental load, and actual status of its application needs to be monitored.

5) Containment

It means that a substance, whether intentionally or unintentionally, is added, filled, blended or adhered in/with/to parts, materials or devices that constitute products (it also includes the case where a substance is unintentionally blended or adhered with/to products in the process of processing).

6) Impurity

A substance contained in natural materials that cannot be technically eliminated in the process of refining the materials as industrial materials, or a substance produced in the process of synthesis reaction that cannot be technically eliminated. It is called "impurity" to differentiate it from main raw materials. When an "impurity" substance is used for the purpose of changing the characteristics of a material, it is treated as "contained/containment".

7) Material

A uniform material that cannot be divided any more to achieve its intended use, or a composite material that can be regarded as uniform.

5. Implementation and exclusion

1) For individual products, laws and regulations, industrial guidelines, and other requirements that apply to a particular product at the point of delivery to our company should be observed as well as this procedure.

2) Implementation by commission manufactures

Please instruct and encourage your manufacturers including your own manufacturing functions and secondary or lower level suppliers of parts and materials purchased by your company for manufacture of items to be delivered to our company to implement environmental preservation activities in accordance with this guideline and ensure the requirements of the guideline are satisfied.

3) Implementation by suppliers other than above

Please communicate this guideline to your manufacturers of items to be delivered to our company and instruct them to implement environmental preservation activities in accordance with this guideline. After collecting information on the achievement status of each manufacturer for this guideline, you are kindly requested to provide it to our company.

4) Change to existing item for your reason

For any change related to this guideline (change of parts, devices, materials and manufacturing process, etc.), please report it to us in advance.

5) As necessary, the article on green procurement may be incorporated in the basic contract,

MOU, delivery specifications, etc. individually. In such case, individual specifications will be prioritized for the environmental requirements.

- 6) When implementation of this guideline cannot be accepted due to our customer's request, the customer's guideline may be used for implementing the green procurement in instead.
- 7) Controlled environmental substances used at the stage of research and development are not applicable in this guideline. However, please make sure identification management so as not to contaminate or mix your products to be delivered to us with prohibited substances.

6. Supplier survey

Our company thinks it is important judgment factor for us to select items to purchase whether or not our suppliers actively address improvement of product and service environment and quality. For starting and continuing procurement with a supplier, we will conduct a survey on the environmental activities as follows. Each item is evaluated on site during our visit to your premise or in writing we may ask you to fill out a questionnaire, etc. Please disclose the product environmental information or how you address environmental preservation activities actively. We may ask request for improvement or refuse procurement depending on the survey result.

- 1) Implementation status of environmental management system
- 2) Non-use of prohibited substances at each stage of its manufacturing process and supply chain
- 3) System for preventing contamination of items with prohibited substances.
- 4) Receiving/shipment inspection and lot traceability
- 5) Implementation status of 4M change management
- 6) Status of environmental management of secondary or lower level suppliers
- 7) System for providing and controlling environmental evidences defined in the next clause 7
- 8) Response to nonconformity

7. Environmental and quality evaluation on items

- 1) As to controlled environmental substances contained in items,
 - Please report that the controlled values of containment prohibited substances defined in Table 1 are observed.
 - Please report the usage situation for controlled substances defined in Table 2.
- 2) Structure for cooperation with our company

Our company requests for submission of guarantee for controlled environmental substances in our own format, ICP analysis data*1 and information on various chemical ingredients as evidences that items comply with this guideline. Please submit them promptly upon request by our department in charge of the survey.
- a) Guarantee for controlled environmental substances contained in products (CEM-G01-01, Attachment 1)

b) List of component substances (CEM-G01-03, Attachment 2), or information on chemical ingredients in any of the following formats

- | | |
|--------------------|--|
| ① MIL sheet | (used mainly for metallic materials) |
| ② MSDS-PLUS *2 | (used mainly for resin materials) |
| ③ AIS *3 | (used mainly for parts) |
| ④ JGPSSI format *4 | (used mainly for parts) |

Please visit the URL listed at the end of this page and confirm the information on these chemical ingredients, and ensure to use the latest version of the format. When suppliers have their own format of the ingredient information, use of their format is accepted as long as the format is consistent with the information on the controlled environmental substances defined in this procedure.

MSDS that describes the maker of raw materials and major component is helpful information for grasping conditioning agent used for painting, printing, plating and surface treatment. However, there is no obligation to describe minor constituent although it is required by RoHS directive and customers and, therefore, it is not enough as ingredient information to verify compliance with the green procurement requirement.

c) ICP analysis data *1

Target material for analysis is resin, ink and paint, unless otherwise required by customers.

*1 ICP analysis data: an analysis data resulting from inductively coupled plasma - emission spectro-photometric analysis (ICP-OES[ICP-AES]) or inductively coupled plasma – mass spectrometry (ICP-MS) in compliance with IEC62321:2008.

*2 MSDS-PLUS: a basic sheet for communicating information on chemical substances contained products, recommended by Joint Article Management Promotion-consortium (Called as JAMP:<http://www.jamp-info.com/>). This supplements MSDS and specifies “name of laws and regulations, etc.”, “containment”, “substance name”, “CAS No.”, “concentration”, and more information as material information for creation of AIS.

*3 AIS: information description format, advocated by JAMP, for disclosing and communicating information on chemicals contained molded products.

At present, REACH is one of the most concerned environmental regulations and information sharing between upstream/down stream users is essential for compliance with the regulation. This describes “mass”, “parts”, “materials” of molded product, and “containment, name, content and concentration of a molded product” and more information and is used for communication to downstream users.

*4 JGPSSI format: a format, which has been agreed on by Japan Green Procurement Survey Standardization Initiative for survey and questionnaire on content of target substance group (Called as JGPSSI:http://www.db1.co.jp/jeita_eps/green/). Ver4.02 covers 32 substance groups.

(Each URL information was taken as of 2010/8/1)

8. Response to nonconformity

8.1 Nonconforming item

When any prohibited substance, which is defined in this guideline, contained in products, parts and devices defined in 2.2 that are purchased for the sales purpose appears to exceed its threshold value (whether intentionally or unintentionally), it is treated as nonconforming item. When a substance not listed in this procedure has been apparently defined as a prohibited substance due to change of the legal and other requirements, the substance is treated as a nonconforming item in the same way.

8.2 Action to take for nonconformity

When a nonconformity occurs, or possibility of occurrence is recognized, suppliers should report it to Canare immediately and take measures to prevent reoccurrence in a thorough manner, e.g. handling of actual item, cause investigation, survey of impact/spread, review of internal rules and regulations.

When occurrence of nonconformity has caused damage to us, we may ask you to bear the expenses for the damage.

In such case, actions to be taken will be determined through consultation between the supplier and our company.

9. Revision record

Date	Revisions
2006/2/7	Table 1 Containment prohibited substances and control values : target and application of polyvinyl chloride reviewed
2010/8/27	1 to 8: Entire review. Table 1 "Containment prohibited substances and control values" updated Table 2, 3 and 4 reviewed

End

Table 1 Containment-prohibited substances and control values

Substance group	Control value	Target items, applications, etc.	Exclusion
Cadmium and cadmium compounds	Intentional addition prohibited	Plating	Electric contact plating that needs high reliability and there is no alternative material Filter glass
	Less than 5ppm	Stabilizer, pigment, dye contained in plastic (including rubber) material paint, ink Optical glass (starting from 1st June 2010)	
	Less than 20ppm	Lead-free solder (solder bar, solder wire, resin flux cored solder, solder paste, solder joints on substrate, parts soldering)	
	Less than 75ppm	Parts sections consisting of metal containing zinc (brass, zinc diecast, etc.)	
	Less than 100ppm	Other applications than mentioned above Packaging materials *1	
Lead and lead compounds	No containment	Surface treatment of external electrode lead terminals, etc. of parts (electric parts, semi-conductor device, heatsink, AC adapter, etc.)	High-melting solder for connection of parts and devices (lead solder with 85wt% or more of lead) Solder for connecting semiconductor chip in IC flip package and connection substrate Glass, ceramic or those matrix compounds used for electric/electronic parts Optical glass, filter glass Dielectric ceramic in a capacitor with min. 125VAC or 250VDC of rating voltage Crystal glass defined in EU directive 69/493/EEC Annex I (Categories 1, 2, 3, 4)
	Less than 100ppm	Stabilizer, pigment, dye contained in plastic (including rubber) material Paint, ink Packaging material *1	
	Less than 500ppm	Lead-free solder (solder bar, solder wire, resin flux cored solder, solder paste)	
	Less than 800ppm	Lead-free solder used in parts, devices and production equipment (lead-free solder in flow solder tank, solder joints on PCBs, parts solder) Electroless nickel plating and electroless gold plating film	
	Less than 1000ppm	Application other than above (control value for alloy material described below)	
	Less than 0.35wt%	Steel material	
	Less than 0.4wt%	Aluminum alloy	
	Less than	Copper alloy (including brass, phosphor bronze)	
Mercury and mercury compounds	No containment	Pigment, paint and ink, time meter, mercury-wetted contact relay, switch, sensor, plastic conditioner and any other applications	Cold-cathode fluorescent lamp (CCFL) and external electrode fluorescent (EEFL) that contains less than 3.5mg for each when its length is 500mm or shorter, and less than 13mg for each when it exceeds 1500mm.
	Less than 100ppm *1	Packaging material	
Hexavalent chromium compounds	100ppm	Application as component of parts/materials e.g. paint, ink and other additive agent Residue on treated surface (only substances containing hexavalent chrome element is applicable) in plating, chemical conversion treatment and other surface treatment (for screws, steel plate, etc.) Packaging material *1	Metallic chrome, chrome in alloy
	0.2µg/cm ²	Those that cannot be calculated in mass for surface treatment (chromate treatment for aluminum, etc.)	
	Less than 100ppm	All applications other than those described above	
Poly brominated biphenyl (PBB)	No containment	All applications including flame retardant for plastic, etc.	
Poly brominated diphenyl ether (PBDE)	No containment	All applications including flame retardant for plastic, etc. *Decabromodiphenylether (DecaBDE) is included	
Tributyltin compounds, triphenyltin compounds	No containment	All applications including paint, ink, antiseptic agent, antimold agent, stabilizer, etc.	Metallic tin, tin alloy, tin solder and tin inorganic compounds
Dibutyltin(DBT) compounds	Tin concentration Less than 1000ppm	All applications including additive agent for plastic, etc.	Metallic tin, tin alloy, tin solder and tin inorganic compounds
Diocetyl tin(DOT) compounds	Tin concentration Less than 1000ppm	Fibrous and woven materials	Metallic tin, tin alloy, tin solder and tin inorganic compounds
Polychlorinated biphenyls (PCBs)	No containment	All applications such as transformer, condenser, insulation oil, lubricant, plastic flame retardant, etc.	

Table 1 Containment-prohibited substances and control values

Substance group	Control value	Target items, applications, etc.	Exclusion
Polychlorinated naphthalene (with more than 3 chlorine)	No containment	All applications such as transformer, condenser, insulation oil, lubricant, plastic flame retardant, etc.	
Polychlorinated terphenyl (PCT)	No containment		
Shortchain chlorinated paraffins (SCCP)	No containment	Application for enclosure (cabinet), PCB for products including accessories. Short Chain Chlorinated Paraffins with carbon chain length of 10-13 are applicable.	
Hydrofluorocarbon (HFC), perfluorocarbon (PFC)	No containment	All applications contained in products such as refrigerant, thermal insulating material, etc.	
Perfluorooctanesulfonic acid (sodium contained)(PFOS)	No containment	All applications except for excluded ones	Photograph film for industrial use, semiconductor photoresist
Specific benzotriazole	No containment	Ultraviolet coating agent, ultraviolet absorbing agent used in decorative board, photographic paper, molded plastic. 2-(2H-1,2,3-benzotriazole-2-yl)-4,6-di-tert-butylphenol(CAS No.3846-71-7) are applicable.	
Cobalt chloride	No containment	Humidity indicator used for desiccant (silica gel, etc.)	
Dimethyl fumarate (DMF)	No containment	All applications including antiseptic agent, antimold agent, desiccant, etc. (CAS No.624-49-7)	
Beryllium oxide	No containment	All applications including heatsink, etc.	
Polyvinyl chloride(PVC) and PVC compounds	Prohibited	Banding tie, product packaging sheet, heat-shrinkable tube	Resin binder, insulating tape
	Prohibited due to customer application	Packaging parts/materials used for accessories delivered together with products (plastic bag, adhesive tape, blister pack, etc.) Flexible flat cable (FFC), insulating plate, decorative board, label, sheet, laminate materials	Insulating tape Lead of transformer (impregnated with varnish) Curl cord Ultrafine wire with more than AWG36 Application in case universal cables cannot use for industrial-use equipment (camera cable for broadcasting, microphone cable, etc.)
Asbestos	No containment	All applications such as insulating material, filler, etc.	
Azo dye pigment	No containment	Pigment that can generate certain amine and is used for points of contact with human body in products to be manufactured as contacting with human body continuously (earphones, headphone, shoulder pad for shoulder bag, belt strap, etc.) See Table 3.	
Formaldehyde	Standard value (concentration for release) established with testing method	Fibre board, particle board and wooden products made of plywood to be used as incorporated into products (speaker, rack, etc.)	
Ozone depleting substance (ODS)	Intentional addition prohibited	All applications including refrigerant, thermal insulating material Parts/materials provided with ODS washing treatment and foaming treatment (as defined in Table) * Use in manufacturing process is also prohibited.	
Nickel and its compounds	Intentional addition prohibited	Parts that make contact with human body continuously	All defined in the left column

*1 Total amount of heavy metals: lead, cadmium, mercury, hexavalent chromium contained in packaging material and packaging part is less than 100ppm at a ratio by weight. However, in plastic part (including rubber part), cadmium concentration is less than 5ppm.

6 substances regulated by RoHS directive

Table 2. List of Controlled substances

No. *1	Category	Substance group	Substance	Major applications
A01	Metal and metal compounds*2	Antimony and antimony compounds	Antimony and Antimony Compounds	Pigment, paint, catalytic agent, flame retardant, stabilizer, optical lens, solder, ink
A02		Arsenic and arsenic compounds	Arsenic and Arsenic Compounds	Decoloring of glass, pigment, paint, dye, semiconductor device, flame retardant, ink
A03		Beryllium and beryllium compounds	Beryllium and Beryllium Compounds	Ceramic raw material, alloy, catalytic agent, electrode, mold, contact, spring material
A04		Bismuth and bismuth compounds	Bismuth and Bismuth Compounds	Lead-free solder, semiconductor terminal plating, electrode, surface treatment
A11		Nickel and nickel compounds *3	Nickel and Nickel Compounds	Pigment, paint, coloring agent, battery material, plating, electrode, surface treatment
A13		Selenium and selenium compounds	Selenium and Selenium Compounds	Semiconductor material, photoreceptor, pigment, paint, light sensitive element
A16		Magnesium	Magnesium	Alloy
B08	Halogenated organic compounds	Brominated Flame Retardants *4	Brominated Flame Retardants	Plastic flame retardant
C05	Others	Phthalates *5	Phthalates	Plasticizing agent of polyvinyl chloride resin such as cable coating, etc.
D01	Noble metals *2	Copper and copper compounds	Copper and Copper Compounds	Surface treatment for corrosion, conductor printing paste, alloy material, pigment, dye, plating
D02		Gold and gold compounds	Gold and Gold Compounds	Plating, surface treatment, semiconductor material
D03		Palladium and palladium compounds	Palladium and Palladium Compounds	Solder parts plating, conductor printing paste, electroless plating
D04		Silver and silver compounds	Silver and Silver Compounds	Plating, conductor printing paste, solder, optical material, electric contact material

*1 Substance group No. defined by Japan Green Procurement Survey Standardization Initiative (JGPSSI)

*2 Metal includes its alloy.

*3 NEC has designated it as prohibited substance (part making contact with human body continually).

*4 Bromine-type flame retardant except PBBs and PBDEs

*5 The following 7 chemical substances are target substances. (Table 4)

- Bis(2-ethylhexyl)phthalate
- Dibutyl phthalate
- Butyl benzyl phthalate
- Diisononyl phthalate
- Diisodecyl phthalate
- Di-n-octyl phthalate
- Di-n-hexyl phthalate

Table 3. List of amine that should not be generated through decomposition of azo compound

CAS No.	Amine
92-67-1	4-aminodiphenyl
92-87-5	Benzidine
95-69-2	4-chloro-o-toluidine
91-59-8	2-naphthylamine
97-56-3	o-aminoazotoluene
99-55-8	2-amino-4-nitrotoluene
106-47-8	p-chloroaniline
615-05-4	2,4-diaminoanisole
101-77-9	4,4'-diaminodiphenylmethane
91-94-1	3,3'-dichlorobenzidine
119-90-4	3,3'-dimethoxybenzidine
119-93-7	3,3'-dimethylbenzidine
838-88-0	3,3'-dimethyl-4,4'-diaminodiphenylmethane
120-71-8	p-cresidine
101-14-4	4,4'-methylene-bis(2-chloroaniline)
101-80-4	4,4'-oxydianiline
139-65-1	4,4'-thiodianiline
95-53-4	o-toluidine
95-80-7	2,4-toluylenediamine
137-17-7	2,4,5-trimethylaniline
90-04-0	o-anisidine
60-09-3	4-aminoazobenzene

Table 4. List of Specific phthalate ester (phthalate)

CAS No.	Name	Abbreviated
117-81-7	Bis(2-ethylhexyl)phthalate	DEHP
84-74-2	Di-n-butyl phthalate	DBP
85-68-7	n-Butyl benzyl phthalate	BBP
28553-12-0 68515-48-0	Di-i-nonyl phthalate	DINP
26761-40-0 68515-49-1	Di-i-decyl phthalate	DIDP
117-84-0	Di-n-octyl phthalate	DNOP
84-75-3	Di-n-hexyl phthalate	DNHP