Green Procurement Guideline (for suppliers)

(Ver. 3.0)

Establishment: 20th June 2005

Revision: 12th June 2017

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 designed and sold by Canare group through selection and incorporation of commercialized products.
- 4) Products sold with Canare brand through Canare group's commissioning design, development and manufacture
- 5) 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) Substances of Very High Concern (SVHC)

Substances that are likely to cause harm to human health which is announced by European Chemicals Agency (ECHA) based on the REACH regulation (EC No. 1907/2006). Under the REACH regulation, some of harmful substances defined in Article 57 of the regulation are registered to Candidate List of Substances of Very High Concern for Authorisation (hereinafter referred to as candidate list) when they are applicable, and some of them are selected as authorised substances and listed in Annex XIV of REACH. This procedure refers to substances registered in the candidate list for authorisation mentioned above. The provision of the REACH regulation does not define the term of SVHC, however, the term is practically used.

6) 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).

7) 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".

8) 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 asthis 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 environmetnal 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, information on various chemical ingredients and ICP analysis data*1 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)

⑤ chemSHERPA※5

Please visit the URL listed in the notes described below 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 I EC62321:2008.

- *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.

*5 shemSHERPA

The new scheme for communication of information on chemical substances contained in products which supersedes AIS, MSDS-PLUS, developed by METI. The information to be specified is the same as that defined in AIS and MSDS-PLUS, and moreover, it is aimed at its development stage to become the scheme for the international standard, not just the national standard in Japan. From the fiscal 2016, JAMP is to operate the scheme. Shift from AIS/MSDS-PLUS to chemSHERPA is recommended during the transition period ending at the end of March 2018. Over 100 companies have already agreed to disseminate the new scheme.

(Each URL information was taken as of 2017/2/1)

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 an 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
2017/2/1	The item: chemsSHERPA added as the format used for specifying chemical ingredients in 7. For this reason, the previously-used List of component substances (CEM-G01-03) was abolished and no longer used for new operation. Table 1: "Containment prohibited substances and control values" updated.

End

Table 1 Containment-prohibited substances and control values

Substance group	Control value	Target items, applications, etc.	Exclusion	
	Less than 20ppm	Lead-free solder (solder bar, solder wire, resin flux cored solder, solder paste, solder balls, solder joints on substrate, parts soldering)	Cadmium and its compounds in electrical contacts (8b)	
Cadmium and cadmium compounds *2) RoHS Directive (2011/65/EU)	Less than 75ppm	Parts and sections consisting of other metal materials than lead-free solder and metal containing zinc (brass, zinc die cast, etc.), surface treatment (plating, etc.), and coating		
	100ppm or less	①Other applications than mentioned above ②Packaging materials *1		
	Less than 100ppm	①Stabilizer, pigment, dye contained in plastic (including rubber) materia ②Paint, ink ③Packaging material *1		
	Less than 500ppm	Lead-free solder (solder bar, solder wire, resin flux cored solder, solder paste)	① Lead in high melting temperature type solders (i.e. lead based alloys	
	Less than 800ppm	①Lead-free solder (lead-free solder in flow solder tank, solder joints on PCBs, parts solder) ②Electroless nickel plating and electroless gold plating film	containing 85% by weight or more lead) (7a) ② Lead in electrical and electronic components in a glass or ceramic except dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or	
Lead and lead compounds *2) RoHS Directive (2011/65/EU)	Less than 1000ppm	Application other than above (control value for alloy material described below)	ceramic matrix compound (7c-1) ③ Lead in dielectric ceramic in capacitors for a rated voltage of 125VAC or 250VDC or higher (7c-2)	
	0.35wt% or less	Steel material	Lead in white glasses used for optical applications (13a) Lead in filter glasses and glasses used for reflectance standards (13b) Lead in solders to complete a viable electrical connection between	
	0.4wt% or less	Aluminum alloy	semiconductor die and carrier within integrated circuit flip chip packages (1	
	4wt% or less	Copper alloy (including brass, , phosphor bronze)		
Mercury and mercury compounds	Intentional addition prohibited and less than 1000ppm	Pigment, paint and ink, time meter, mercury-wetted contact relay, switch, sensor, plastic conditioner and any other applications		
*2) RoHS Directive (2011/65/EU)	Less than 100ppm	Packaging material*1		
	Less than 3ppm	Natural leather products and parts (excluding synthetic leather)		
Hexavalent chromium compounds		All applications other than those described above and excluded ones Materials for chromate treatment (base galvanization)		
*2) RoHS Directive (2011/65/EU)	0.2µg/cm2	Materials for surface treatment other than base galvanization		
	Less than 100ppm	Packaging material*1		
Poly brominated biphenyl (PBB) *2) RoHS Directive (2011/65/EU)	Intentional addition prohibited and less than 1000ppm	All applications including flame retardant for plastic, etc.		
Poly brominated dyphenyl ether (PBDE) *2) RoHS Directive (2011/65/EU)	Intentional addition prohibited and less than 1000ppm	All applications including flame retardant for plastic, etc. *Decabromodiphenylether (DecaBDE) is included		
Specified phthalates (DEHP,DBP,BBP,DIBP) *2) RoHS Directive (EU) 2015/863, to be enforced in July 22, 2019	Less than 1000ppm	Plasticizer for rubber, elastomer, and polymer products such as PVC, etc., workability improvement additive agent, paint, pigment, dye, ink, adhesive, and sealing agent.		

Table 1 Containment-prohibited substances and control values

Substance group	Control value	Target items, applications, etc.	Exclusion
Tributyltin(TBT) compounds, triphenyltin(TPT) compounds	Intentional addition prohibited and less than 1000ppm of tin concentration	All applications including paint, ink, antiseptic agent, antimold agent, stabilizer, etc.	
Dibutyltin(DBT) compounds *3	Tin concentration Less than 1000ppm	All applications including additive agent for plastic, etc.	
Dioctyltin(DOT) compounds *4	Tin concentration Less than 1000ppm	Additive agent for fibrous and woven materials	
Polychlorinated biphenyls (PCBs)	Intentional addition prohibited and less than 50ppm	All applications such as transformer, condenser, insulation oil, lubricant, plastic flame retardant, etc.	
Polychlorinated naphthalene (with more than 3 chlorine atoms)	Intentional addition prohibited	All applications such as lubricant oil, paint, stabilizer (electric property, flame-proof, and water-proof), insulation material, flame retardant, etc.	
Polychlorinated terphenyl (PCT)	Intentional addition prohibited and less than 50ppm	All applications such as insulation oil, lubricant oil, electric insulation material, solvent, electrolyte, plasticizer, fire protection material, flame retardant, coating agent for cables, dielectric sealant, etc.	
Shortchain chlorinated paraffins (SCCP)	Intentional addition prohibited and less than 1000ppm	Application for PVC plasticizer, flame retardant (P), enclosure (cabinet) and PCB for products including accessories. Short Chain Chlorinated Paraffins with carbon chain length of 10-13 are applicable.	
Hydrofluorocarbon (HFC), perfluorocarbon (PFC)	Intentional addition prohibited	All applications contained in products such as refrigerant, thermal insulating material, etc.	
	Intentional addition prohibited	All applications other than excluded ones	
Perfluorooctanesulfonic acid (sodium	10ppm or less	Content rate in preparations (ink, toner, etc.)	(PFOS/PFOS analogous compounds) ① Photoresist for photolithography process, antireflection coating agent, or
contained)(PFOS)	1000ppm or less	Content rate in materials	resist for semiconductors ② Coating agent used for film, paper and printing plate for photography
	1μg/m² or less	Content rate of coated materials	
Perfluorooctanoic acid (PFOA) and individual	Intentional addition prohibited and less than 1µg/m ²	Coating agent for fibrous, woven and leather materials	
salts and esters of PFOA	Less than 1000ppm	All applications other than those described above	
Specific benzotriazole	Intentional addition prohibited	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-butvlphenol(CAS No.3846-71-7) are applicable.	
Cobalt chloride	Intentional addition prohibited	Humidity indicator used for desiccant (silica gel, etc.)	
Dimethyl fumarate (DMF)	Less than 0.1ppm	All applications including antiseptic agent, antimold agent, desiccant, etc. (CAS No.624-49-7)	
Beryllium oxide	Intentional addition prohibited	All applications including heatsink, etc.	
Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene; BNST	Intentional addition prohibited	All applications such as additive agent (antioxidant) used for rubber and lubricant oil, etc.	
Polycyclic Aromatic Hydrocarbons; PAHs *5	Less than 1ppm	Components made of rubber or plastics which make contact directly with human skin or inside of mouth for a long time or repeatedly for a short-time period	

Table 1 Containment-prohibited substances and control values

Substance group	Control value	Target items, applications, etc.	Exclusion
	Prohibited	Banding tie, product packaging sheet, heat-shrinkable tube	
Polyvinyl chloride(PVC) and PVC compounds	Prohibited due to customer application	①Packaging parts/materials used for accessories delivered together with products (plastic bag, adhesive tape, blister pack, etc.) ②Flexible flat cable (FFC), insulating plate, decorative board, label, sheet, laminate materials	
Asbestos *6	Intentional addition prohibited and less than 1000ppm	All applications such as insulation materials, filler, etc. (Refer to Annex 4.)	
Specified azo compounds *7	and less than 30ppm	Amines and azo compounds which form certain amines. Additive agent for fibrous, woven and leather materials	
Formaldehyde	Standard value (concentration for release) established with testing method	Wood products (speaker, rack, etc.) using materials such as fiber boards, particle boards, and plywood boards which are incorporated in final products Testing methods and standard value (concentration for release) established according to customers' applications. Concentration in the air at layer for airtightness testing: 0.1 ppm or less (chamber method) Amount of extraction with toluene: 6.5 mg up to 8.0 mg per 100 g (perforator method) Concentration in aqueous solution: 0.5 mg/L or less at average, and 0.7 mg/L or less at max. (desiccator method)	
	Less than 75ppm	Woven fabric products	
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.	
Hexabromocyclododecane (HBCDD) and all major diastereoisomers	Intentional addition prohibited and 1000ppm or less	Flame retardant (foamed polystyrene formed product, adhesive agent,and fiber coating)	

6 substances regulated by RoHS directive

^{*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.

^{*2} For particular issues including expiration of exemptions regarding RoHS Directive, the latest requirements in effect should be followed.

^{*3} Refer to Appendix Table 3. Dibutyltin (DBT) compounds.

^{*4} Refer to Appendix Table 4. Dioctyltin (DOT) compounds.

^{*5} Refer to Appendix Table 5. Polycyclic aromatic hydrocarbons (PAH).

^{*6} Refer to Appendix Table 6. Asbestos.

^{*7} Refer to Appendix Table 7. Specified azo compounds.

Table 2. List of Controlled substances

№ *8	Category	Substance group	Substance	Major applications
A01		Antimony and antimony compounds	Antimony and Antimony Compounds	Pigment, paint, catalytic agent, flame retardant, stabilizer, optical lens, solder, ink
A02	Metal and metal compounds	Arsenic and arsenic compounds	Arsenic and Arsenic Compounds	Decoloring of glass, pigment, paint, dye, semiconductor device, flame retardant, ink
A03	Metal and met	Beryllium and beryllium compounds	Beryllium and Beryllium Compounds	Ceramic raw material, alloy, catalytic agent, electrode, mold, contact, spring material
A11		Nickel and nickel compounds *9	Nickel and Nickel Compounds	Pigment, paint, coloring agent, battery material, plating, electrode, surface treatment
B08	Halogenated organic compounds	Brp,omated Flame Retardants *10	Brominated Flame Retardants	Plastic flame retardant
C10 C47	Other	Other phthalates *11	Phthalates	Plasticizer for rubber, elastomer, and polymer products such as PVC, etc., workability improvement additive agent, paint, pigment, dye, ink, adhesive, and sealing agent.
-	Đ	2-(2H-benzotriazole-2-il)- 4,6-di-tert-pentylphenol (UV-328)	2-(2H-Benzotriazol-2-yl)-4,6- ditertpentylphenol	Ultraviolet absorbing agent

^{*8} Substrate group No. defined by Japan Green Procurement Survey Standardization Initiative (JGPSS).

^{*9} NEC has designated it as prohibited substance (part making contact with human body continually).

^{*10} Bromine-type flame retardants except PBBs and PBDEs.

^{*11} The following three chemical substances are target substances for EU risk assessment.

[•]Di-"isononyl" phthalate (28553-12-0) •Di-"isodecyl" phthalate (26761-40-0) •Dioctyl phthalate (117-84-0)

Appendix Table 3 List of Dibutyltin (DBT) compounds

CAS No.	Name	Abbreviated name/also known as
818-08-6	Dibutyltin oxide	
1067-33-0	dibutyltin diacetate	
77-58-7	Dibutyltin dilaurate	
78-04-6	Dibutyltin maleate	
683-18-1	Dibutyltin dichloride	DBTC

Appendix Table 4 List of Dioctyltin (DOT) compounds

CAS No.	Name	Abbreviated name/also known as
870-08-6	Dioctyltin oxide	
3648-18-8	Dioctyltin dilaurate	

Appendix Table 5. List of Polycyclic aromatic hydrocarbons (PAH)

CAS No.	Name	Abbreviated name/also known as
50-32-8	Benzo[a]pyrene	ВаР
92-87-5	Benzo[e]pyrene	BeP
56-55-3	Benzo[a]anthracene	BaA
218-01-9	Chrysen	CHR
205-99-2	Benzo[b]fluoranthene	BbFA
205-82-3	Benzo[j]fluoranthene	BjFA
207-08-9	Benzo[k]fluoranthene	BkFA
53-70-3	Divenzo[a, h]anthracene	DBAhA

Appendix Table 6. List of Asbestos

CAS No.	Name	Abbreviated name/also known as
1332-21-4	Asbestos, unspecified	
12172-73-5	Amosite	
12001-29-5	Chrysotile	
12001-28-4	Crocidolite	
77536-66-4	Actinolite	
77536-67-5	Anthophyllite	
77536-68-6	Tremolite	

Appendix Table 7. List of Specified azo compounds

CAS No.	Name	Abbreviated name/also known as
92-67-1	4-aminodiphenyl	
92-87-5	Benzidine	
95-69-2	4-chloro-o-tluidine; 4-chloro-2-methylaniline	
91-59-8	2-naphthylamine	
97-56-3	o-aminoazotoluene	
99-55-8	2-amino-4-4 nitrotoluene; 5-nitro-o-toluidine	
106-47-8	p-chloroaniline	
615-05-4	2, 4-diaminoanisole	
101-77-9	4,4'-diaminodiphenylmethane; 4,4'-methylenedianiline	
91-94-1	3,3'-dichlorobenzidine	
119-90-4	3,3'-dimethyoxybenzidine	
119-93-7	3,3'-dimethylbenzidine	
838-88-0	3,3'-dimethyl-4,4'-diaminodiphenylmethane; 4,4'-diamino-3,3'-dimethylphenylmethane	
120-71-8	p-cresidine; 6-methoxy-m-toluidine	
101-14-4	4,4'-methylene-bis-(2-chloroaniline)	
101-80-4	4,4'-oxydianiline	
139-65-1	4,4'-thiodianiline: 4,4'diaminodiphenylsulfide	
95-53-4	o-toluidine	
95-80-7	2,4-toluenediamine; 4-methyl-m-phenylenediamine	
137-17-7	2,4,5-trimethylaniline	
90-04-0	o-anisidine	
60-09-3	4-amino azobenzene	
6410-30-6	Red pigment 8	
6448-95-9	Red pigment 22	
6358-87-8	Red pigment 38	