



# Green Procurement Guidelines

Second Edition

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**YASKAWA ELECTRIC CORPORATION**

# Introduction

Protecting and maintaining the Earth's environment is receiving growing international recognition in the form of coordinated initiatives in many fields of endeavor encompassing politics, economics, industry, and civic life.

Toward the preservation of the global environment, it is imperative that we build a renewable economy and a society that promotes waste reduction and recycling. Progress in innovation and manufacturing must also be undertaken utilizing technology that considers the environment.

Yaskawa advocates environmentally sound initiatives in all areas, from developing products with a minimal environmental impact throughout the product's lifecycle, spanning procurement of parts and/or materials, manufacturing, distribution, consumption, disposal, and recycling, through to plant and business activities.

This task, however, cannot be sufficiently handled by Yaskawa's environmental preservation efforts alone. Inevitably, procurement of materials that impose a minimal impact on the environment is of great necessity and importance, and has led to the compilation of these Green Procurement Guidelines. We will continue to promote business activities that focus on the environment and work with our suppliers to create environmentally friendly products.

We thank you for understanding the importance of addressing global environmental preservation, and look forward to working with each and every one of our suppliers toward realizing our goals.

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Head of Procurement Department  
Yaskawa Electric Corporation

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## I. Yaskawa's Environmental Protection Policy

### ◆ Basic Philosophy of Environmental Protection

Yaskawa's management philosophy establishes that "Our Company's Mission is to contribute to the evolution of society and the welfare of mankind through the performance of its business."

Yaskawa recognizes that the protection of Earth's environment is one of the most important issues common to mankind. In every aspect of business, we must consider and implement environmental protection. As a result, our management philosophy will be fulfilled and our duty to society accomplished.

### ◆ Basic Action Plan

1. Set goals for environmental protection and continually improve environmental protection activities within feasible technological and economic means, together with recognizing environmental issues as a top management priority and conducting business practices that consider environmental protection.
2. Assess the environmental impact of our business activities and product development, and strive to reduce the impact on the environment through each of the phases of the product's lifecycle, spanning manufacturing, distribution, use, and disposal.
3. Observe environmental laws and regulations and further, set our own standards and improve our own levels of control through auditing and other processes.
4. Foster environmental education to increase all employees' consciousness concerning environmental protection and plan to cooperate with regional companies through the creation of environmental protection programs.
5. Inform the public as well as all employees of our environmental policy.

## II. Yaskawa's Green Procurement Guidelines

### 1. Goals

To create environmentally sound products in affirmation of our view that “in every aspect of business, we must consider and implement environmental protection,” Yaskawa promotes procurement of materials with minimal impact on the environment, otherwise referred to as “green procurement.”

In line with these Green Procurement Guidelines, procurement of materials from our suppliers is subject to the following principles.

- \* The use of hazardous substances in Yaskawa products will be abolished in view of the increasing movement throughout the world by the electrical and electronic industry to address environmental issues. This drive includes restrictions such as the EU Directive planning to ban the sale of products that contain any of a group of six hazardous substances (e.g., lead, cadmium, mercury, hexavalent chromium, and polybrominated flame retardants), as published in the Waste Electrical and Electronic Equipment Directive (WEEE) and Restriction on Hazardous Substances (RoHS) Directives in February 2003.
- \* By conducting green procurement according to evaluations of suppliers and procured goods and by working with suppliers that take positive initiatives to preserve the environment, Yaskawa will contribute toward cultivating a recycling-oriented society and conserving the Earth's environment.

### 2. Yaskawa's Initiatives

- (1) In consideration of the RoHS Directive and other laws and regulations, Yaskawa has voluntarily specified substances to be prohibited or controlled in addition to those proposed by the Japan Green Procurement Survey Standardization Initiative (JGPSSI) (including substances restricted under the RoHS Directive). Further, Yaskawa is taking measures to conduct surveys of chemical substances in parts/materials, analyze and evaluate the use of alternative procured goods, and implement our own product regulations.
- (2) Priority is given to procurement from suppliers that take positive initiatives to preserve the environment and suppliers that are involved in eco-activities, including obtaining Environmental Management Systems certification under ISO14001.
- (3) Priority is given to procuring products, components, and raw and other materials that impose a minimal impact on the environment.

Yaskawa conducts these initiatives by classifying products into two categories.

① Initiative Regarding Procured Goods such as Materials for Products

“Procured goods such as materials for products” is a generic reference that includes all procured goods (materials, components, semifinished products, finished products, work materials, etc.) used to manufacture products sold by Yaskawa.

Yaskawa conducts evaluation surveys of procured goods regarding their reduced environmental impact and makes efforts to expand the use of procured goods that impose a minimum impact on the environment.

“Work materials” is a generic term for materials consumed during the manufacture of a product, such as paints, oils, and adhesives.

② Initiative for Procured Goods Relating to Manufacturing and Business Activities

“Procured goods relating to manufacturing and business activities” is a generic reference that includes equipment, specialist tools, and office supplies, such as writing implements and stationery.

- 1) Each piece of equipment and specialist tool will be selected for purchase giving priority to products with the least impact on the environment.
- 2) Office supplies, such as writing and stationery, will be selected for purchase based on product compliance criteria stipulated under the Japanese Law on Promoting Green Purchasing.

### 3. Scope of Application

These Guidelines apply to all goods procured by all Yaskawa offices.

### 4. Evaluation and Selection Criteria

#### (1) Supplier Evaluation/Selection Criteria

Priority will be given to procurement from suppliers that have demonstrated motivated efforts to preserve the environment, based on the following items for evaluating environmental preservation initiatives of suppliers.

◎ Criteria for Evaluating Environmental Preservation Initiatives of Suppliers

- ① Suppliers that have obtained or are in the process of obtaining (i.e., have concrete plans to obtain) ISO14001 certification.
- ② Suppliers that have implemented green procurement or have plans to promote green procurement (i.e., have concrete plans to start green procurement).

- ③ Suppliers that have not obtained ISO14001 certification, but are involved in the following environmental preservation initiatives.
- ◆ Corporate Philosophy and Policies
    - 1) Have a corporate philosophy regarding environmental preservation (established environmentally sound beliefs)
    - 2) Have established policies related to environmental preservation and a pledge to their ongoing improvement and to the prevention of pollution.
    - 3) Have stipulated compliance with laws and regulations regarding the environment in corporate policies.
    - 4) Have policies that are documented, all employees are kept informed of these policies, and they are accessible to the general public.
  - ◆ Plans and Organization
    - 5) Have documented environmental preservation targets.
    - 6) Have a clearly established organization, personnel in charge, roles, and authority for attaining environmental preservation targets.
    - 7) Have implementation plans established that clarify the procedures and methods used to attain environmental preservation targets.
  - ◆ Environmental Evaluation and Systems
    - 8) Have a system for obtaining the latest information on environmental laws, regulations, directives, and ordinances, and are making efforts to manage, evaluate, and improve the environmental impact of the following factors.
    - 9) Air pollution
    - 10) Water contamination
    - 11) Soil pollution
    - 12) Making efforts to manage, evaluate, and improve the environmental impact related to waste.
    - 13) Making efforts to manage, evaluate, and improve the environmental impact related to noise and vibration.
    - 14) Managing targets to reduce the energy consumption levels (electric power, gas, and fuel).
    - 15) Have a system for establishing controlled chemical substances and controlling their non-use or reduced usage.
    - 16) Making concerted efforts towards improvement of packaging, use of reusable packing, recycling, and efficient transport procedures.
    - 17) Have a system for product assessment (evaluation).

- 18) Have a system for minimizing the impact on the environment in case of accident, disaster, or other emergency.
- 19) Have a system for checking the status of environmental preservation laws and regulations and the activities of in-house environmental management.
- ◆ Education and Disclosure of Information
- 20) Have implemented a program for educating and informing all employees regarding the environment.
- 21) Have implemented necessary educational and training programs for employees working in areas that have potentially significant impact on the environment, and these educational measures are managed for an employee list.
- 22) Information on the company's environment is available to the public and is disclosed upon request.
- 23) Do not use prohibited substances specified by Yaskawa.

◎ Evaluation Ranking for Environmental Preservation Initiatives of Suppliers

Suppliers are given a ranking according to the following *Table A. Evaluation Ranking for Suppliers* based on responses for 24 items consisting of the above 23 items and the item regarding green procurement initiatives.

Suppliers who receive a low ranking are requested to improve their environmental preservation initiatives to enable a sustained relationship with Yaskawa.

Table A. Evaluation Ranking for Suppliers

	Details	Ranking
(1)	Have obtained or are in the process of obtaining ISO14001 certification.	Rank A
(2)	Answered YES to 100% of the survey questions (not including (1)).	Rank A
(3)	Answered YES to 80% or higher but less than 100% of the survey questions (not including (1)).	Rank B
(4)	Answered YES to 60% or higher but less than 80% of the survey questions (not including (1)).	Rank C
(5)	Answered YES to 40% or higher but less than 60% of the survey questions (not including (1)).	Rank D
(6)	Answered YES to less than 40% of the survey questions (not including (1)).	Rank E
(Questions that are not applicable (-) to the supplier are removed from the denominator when calculating the percentage.)		
(7)	Use chemical substances prohibited by Yaskawa (regardless of items (1) to (6)).	Rank E
(8)	Items relating to green procurement initiatives that are assessed as being implemented or planned are considered as YES answers and those that are neither implemented nor planned are considered as NO answers.	

(2) Procured Goods Evaluation/Selection Criteria

The evaluation criteria for components and materials procured from suppliers was previously based on quality, price, delivery times, and service. Now, assessment includes criteria for reducing the impact on the environment, and priority is given to procured goods that are superior across all criteria. Goods must fulfill the following requirements.



◎ Criteria for Evaluating Reduction in Environmental Burden by Suppliers

◆ Chemical Substances

- 1) Supplied parts/materials are free of prohibited substances specified in the list of surveyed chemical substances. (Refer to the *Survey of Chemical Substances Contained in Procured Goods*.)
- 2) Supplied parts/materials are free of controlled substances specified in the list of surveyed chemical substances. (Refer to the *Survey of Chemical Substances Contained in Procured Goods*.)

◆ Saving Resource

- 3) Are reducing the use of materials by making components smaller, slimmer, and lighter in weight.
- 4) Are reducing the number of components and use of main raw materials.
- 5) Are reusing components and materials, or substituting with eco-friendly materials.
- 6) Have minimized the quantity of resources consumed during usage.
- 7) Products have a longer life span than previous products.

◆ Recyclability

- 8) Are increasing the use of materials that can save resources and components that can be recycled.
- 9) Have a system for collecting and recycling procured goods no longer in use either voluntarily or upon Yaskawa's request.
- 10) Products are easier to disassemble, separate, and collect than previous products.
- 11) Are standardizing and unifying use of materials.
- 12) Energy consumption during operation is less than that of previous products.
- 13) Energy consumption during standby is less than that of previous products.
- 14) Environmental information related to materials (parts) is available to the public.
- 15) Are reducing and reusing packaging materials used in the supplied goods.
- 16) Are increasing the use of recycled materials in the packaging of the supplied goods.
- 17) Are reducing the weight and volume of packaging.
- 18) Packaging design considers the disassembly and space-saving aspects after use.
- 19) Packaging indicates the materials used for easy separation and collection after use.
- 20) Have reduced the use of substances that emit poisonous gases when incinerated.

◎ Evaluation Ranking for Environment Preservation of Procured Goods

Procured materials/products are given a ranking according to the following *Table B. Evaluation Ranking for Procured Goods* based on responses for the above 20 items.

Suppliers of a procured material/product that receive a low ranking are requested to promote the reduction in environmental burden to enable sustained use of the supplied product.

Table B. Evaluation Ranking for Procured Goods

	Details	Ranking
Products are evaluated according to the percentage calculated from the number of YES, NO, and not applicable (-) answers to 20 questions regarding reduction in environmental burden.		
(1)	Answered YES to 100%	Rank A
(2)	Answered YES to 80% or higher but less than 100%	Rank B
(3)	Answered YES to 60% or higher but less than 80%	Rank C
(4)	Answered YES to 40% or higher but less than 60%	Rank D
(5)	Answered YES to less than 40%	Rank E
(Questions that are not applicable (-) are removed from the denominator when calculating the percentage.)		
(6)	Product contains chemical substances prohibited by Yaskawa (regardless of items (1) to (5)). Products are considered to contain chemical substances prohibited by Yaskawa if the product is shown to contain even one of the registered chemical substances in the chemical substances evaluation survey.	Rank E
(7)	Products for which all questions are marked as not applicable (-) will not be ranked.	---
(8)	Products for which all questions are marked as not applicable (-) that are found to contain a chemical substance prohibited by Yaskawa will be given an E ranking.	Rank E

## 5. Administration

### (1) Survey Time Frame

Suppliers are requested to engage in organized environmental preservation activities and continual improvement actions. In line with this, surveys of initiatives regarding environmental preservation activities of suppliers are conducted once per year, and evaluation surveys related to environmental preservation of procured goods will be conducted as required. Suppliers are requested to submit the completed surveys within the designated time frame. Suppliers are also requested to inform Yaskawa of any changes to reported environmental preservation details.

### (2) Applicable Survey Targets

#### ① Evaluation of Environmental Preservation Initiatives of Suppliers

Surveys are applicable to all suppliers that supply goods other than office supplies, such as writing implements and stationery.

The supplier's place of business will also be evaluated.

#### ② Evaluation of Environmental Preservation of Procured Goods

Materials and other goods related to Yaskawa products will be evaluated.

### (3) Evaluation Survey Details

#### ① Survey related to environmental preservation initiatives of suppliers (Refer to *Table 1* on page 10.)

- ② Survey related to environmental preservation of procured goods (Refer to *Table 2* on page 12 and *Table 3* on page 13.)

The following information will be surveyed for all procured goods, including materials, that are related to Yaskawa products.

1) Basic product information

Manufacturer's name, product name, product code, product mass, etc.

2) Reduction in environmental burden

3) Materials and composition (Not compulsory. Provide information where possible.)

Mass or percentage of the composition for every material and product (component) supplied by the supplier.

4) Chemical Substances

Information including mass or percentages of all chemical substances known to be contained in supplied products, either intentionally or unintentionally.

※Survey Priority

Yaskawa requires survey answers for all specified chemical substances contained in supplied products. Due to the time required to complete the survey, however, suppliers are requested to submit answers in the following order of priority.

- ① Use or non-use, amount present, location of substance, and purpose of use of 18 prohibited substances specified by Yaskawa (Refer to *Attachment 2. of Survey of Chemical Substances Contained in Procured Goods.*)
- ② Use or non-use, amount present, location of substance, and purpose of use of 29 chemical substances specified by JGPSSI (Refer to *Attachment 3. of Survey of Chemical Substances Contained in Procured Goods.*)
- ③ Use or non-use, amount present, location of substance, and purpose of use of 49 chemical substances specified by Yaskawa (Refer to *Attachment 1. of Survey of Chemical Substances Contained in Procured Goods.*)

5) Supplied Yaskawa Division Information (Factory, etc.)

Yaskawa office/factory name, Yaskawa item code, Yaskawa product name

(4) Response Method

- 1) We request your cooperation in answering the Internet survey that is provided as part of Yaskawa's green procurement system.

- The *Green Procurement Guidelines* can be downloaded from the Yaskawa website.  
URL: <http://www.yaskawa.co.jp/sizai/green.htm>
- Suppliers selected for the survey have been notified of the URL, ID, and password required for login to the green procurement system.

Should you require any further information or have any problems viewing the Internet pages, please send e-mail to the following address.

E-mail: [green@yaskawa.co.jp](mailto:green@yaskawa.co.jp)

2) Documentation Control

Submitted information shall be given due care and consideration.

3) Certificate of Non-use of Specified Substances

Yaskawa may require submission of a certificate of non-use regarding chemical substances in materials and other supplied goods used in Yaskawa products.

4) Revision

These Guidelines are subject to revision in accordance with changes to social conditions, laws, and regulations.

5) Customer Requests

Suppliers may be requested to provide information different from that contained in these guidelines if a request is received from a Yaskawa customer to restrict or control the use of a substance that is not already included in the group of controlled chemical substances stipulated in Yaskawa's guidelines.

(5) Initiatives to Reduce the Environmental Burden by Suppliers

Yaskawa requests your cooperation in forming alliances with the relevant Yaskawa factories/offices to join us in actively promoting the use and development of alternative materials and other supplies that will reduce the burden on the environment.

6. Contact Details

Purchasing Group, Procurement Department,

Business Process Reengineering Division,

Yaskawa Electric Corporation

Tel: +81-93-645-8833

Fax: +81-93-645-8898

Environmental Protection Department,

Yaskawa Electric Corporation

Tel: +81-93-645-8827

Fax: +81-93-645-8842

Green Procurement E-mail: [green@yaskawa.co.jp](mailto:green@yaskawa.co.jp)

Table 1

## Survey Related to Environmental Preservation Activities of Suppliers

(1) Environmental Management Systems						Response
Do you have ISO14001 certification? (If yes, enter the following details.)						
Date obtained		Certifying organization		Certification No.		
Do you plan to obtain ISO14001? (If yes, enter the following details.)						
Expected date of inspection		Certifying organization				
(2) Green Procurement Activities						Response
Have you implemented green procurement? (If yes, enter the commencement date.)						
Commencement date						
Do you have a plan to promote green procurement? (If yes, enter the expected date of commencement.)						
Expected commencement date						
(3) Environmental Preservation Activities						
If you answered yes to any of the items regarding ISO14001 in (1) above, responses to the following questions 1 to 22 are not required. Skip to question 23. If you answered no, please answer the following questions.						
Evaluation Item						Response
Corporate Philosophy and Policies	1) Do you have a corporate philosophy regarding environmental preservation (established environmentally sound beliefs)?					
	2) Have you established policies related to environmental preservation, and have you pledged to their ongoing improvement and to the prevention of pollution (waste reduction, control of hazardous substances, etc.)?					
	3) Have you stipulated compliance with laws and regulations regarding the environment in your policies?					
	4) Are the policies documented, are all employees kept informed of these policies, and are they accessible to the general public?					
Plans and Organization	5) Do you have environmental preservation targets and are they documented?					
	6) Do you have a clearly established organization, personnel in charge, roles, and authority for attaining environmental preservation targets?					
	7) Do you have implementation plans established that clarify the procedures and methods used to attain environmental preservation targets?					

**(3) Environmental Preservation Activities (cont'd)**

If you answered yes to any of the items regarding ISO14001 in (1) above, responses to the following questions 1 to 22 are not required. Skip to question 23. If you answered no, please answer the following questions.

	Evaluation Item	Response
<b>Environmental Evaluation and Systems</b>	8) Do you have a system for obtaining the latest information on environmental laws, regulations, directives, and ordinances?	
	9) Are you making efforts to manage, evaluate, and improve the environmental impact related to air pollution? (Answer – (N/A) if the laws and regulations do not apply to your company's operations.)	
	10) Are you making efforts to manage, evaluate, and improve the environmental impact related to water contamination? (Answer – (N/A) if the laws and regulations do not apply to your company's operations.)	
	11) Are you making efforts to manage, evaluate, and improve the environmental impact related to soil pollution? (Answer – (N/A) if the laws and regulations do not apply to your company's operations.)	
	12) Are you making efforts to manage, evaluate, and improve the environmental impact related to waste?	
	13) Are you making efforts to manage, evaluate, and improve the environmental impact related to noise and vibration?	
	14) Are you managing targets to reduce the energy consumption levels (electric power, gas, and fuel)?	
	15) Do you have a system for establishing controlled chemical substances and controlling their non-use or reduced usage. (Answer – (N/A) if chemical substances are not used.)	
	16) Are you making concerted efforts towards improvement of packaging, use of reusable packing, recycling, and efficient transport procedures?	
	17) Do you have a system for product assessment (evaluation)?	
	18) Do you have a system for minimizing the impact on the environment in case of accident, disaster, or other emergency?	
	19) Do you have a system for checking the status of environmental preservation laws and regulations and the activities of in-house environmental management?	
	<b>Education and Disclosure of Information</b>	20) Have you implemented a program for educating and informing all employees regarding the environment?
21) Have you implemented necessary educational and training programs for employees working in areas that have potentially significant impact on the environment, and are these educational measures managed for an employee list?		
22) Is information on your company's environment available to the public or disclosed upon request?		
23) Do you use only chemical substances not prohibited by Yaskawa?		

Table 2

## Survey Related to Environmental Preservation of Procured Goods (Reduction in Environmental Burden)

Evaluation Item		Response
<b>Chemical Substances</b>	1) Are the supplied parts/materials free of prohibited substances specified in the list of surveyed chemical substances? (Refer to the Survey of Chemical Substances Contained in Procured Goods.)	
	2) Are the supplied components free of controlled substances specified in the list of surveyed chemical substances? (Refer to the Survey of Chemical Substances Contained in Procured Goods.)	
<b>Resource Saving</b>	3) Are you reducing the use of materials by making components smaller, slimmer, and lighter in weight?	
	4) Are you reducing the number of components and use of main parts and/or materials?	
	5) Are you reusing components and materials, or substituting with eco-friendly materials?	
	6) Have you minimized the quantity of resources consumed during usage?	
	7) Do your products have a longer life span than previous products?	
<b>Recyclability</b>	8) Are you increasing the use of materials that can save resources and components that can be recycled?	
	9) Do you have a system for collecting and recycling procured goods no longer in use either voluntarily or upon Yaskawa's request?	
	10) Are your products easier to disassemble, separate, and collect than previous products?	
	11) Are you standardizing and unifying use of materials?	
<b>Energy Saving</b>	12) Is the energy consumption during operation less than that of previous products?	
	13) Is the energy consumption during standby less than that of previous products?	
<b>Information</b>	14) Is environmental information related to materials (parts) available to the public?	
<b>Packaging Materials</b>	15) Are you reducing and reusing packaging materials used in the supplied goods?	
	16) Are you increasing the use of recycled materials in the packaging of the supplied goods?	
	17) Are you reducing the weight and volume of packaging?	
	18) Does the packaging design consider the disassembly and space-saving aspects after use?	
	19) Does the packaging indicate the materials used for easy separation and collection after use?	
	20) Have you reduced the use of substances that emit poisonous gases when incinerated? (Refer to the Survey of Chemical Substances Contained in Procured Goods.)	

Table 3

### Evaluation Items for the Environmental Preservation of Procured Goods

Evaluation Topic	Evaluation Item	Remarks
Basic Product Information	Manufacturer company name	
	Manufacturer company department	
	Manufacturer representative	
	Representative contact telephone No.	
	Representative E-mail address	
	Supplier (your company's) product name	Catalog name (name used by manufacturer)
	Series name	
	Supplier (your company's) model No.	Catalog model name in catalog (model number used by manufacturer)
	Product mass	
	Unit	
	Ozone-depleting substances	Use or non-use of ozone-depleting substances in manufacturing process
	Notes	
Items regarding reducing the environmental burden (1 to 20)		Presence or absence of the implemented items regarding reducing the environmental burden (Refer to <i>Table 2</i> .)
Materials Used (Answers where Possible)	Name of material	Select.
	Mass, ratio	
	Unit	Select.
	Location of use	
Chemical Substances	CAS No.	
	Name of chemical substance	
	Amount/percent present	
	Unit	Input specified code.
	Location of substance in product	
	Purpose of use	
Supplied Company Information	Name of supplied company	Select.
	Name of supplied office	Select.
	Item code	
	Product No.	
	Product name	



Survey of Chemical Substances  
Contained in Procured Goods

July 2004

Yaskawa Electric Corporation

## 1. Purpose

This document aims to explain the survey regarding handling of chemical substances contained components, products, and raw materials provided to Yaskawa by our suppliers.

## 2. Backgrounds of survey

Restrictions or laws for the certain chemical substances which are harmful for human bodies are tend to work especially in Europe.

- WEEE: “Waste Electrical and Electronic Equipment” Intended to enforce on 05/8/13  
Regulation for recycle, payment marking and others for equipment sold in European Union
- RoHS: “Restrictions of the use of certain Hazardous Substances in Electrical and Electronic Equipment” Intended to enforce on 06/7/1  
New electrical and electronic equipment put on the market in European Union from 1 July 2006 does not contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).
- Chinese RoHS like restriction  
Manufacturer does not sell the products which contain lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).
- Other regulations  
Ozone layer depleting substances restricted by Montreal protocol, Environmentally harmful substances restricted by EU directive, United States restrictions for heavy metal in packaging materials, Anti pollution laws for air/earth/water, Chemical substance control law, Pollutant Release Transfer Register law, German dioxins ordinance, and other foreign country laws.  
We shall comply these laws or regulations and appropriately control chemical substances for delivering environmentally assured products for the customers.

## 3. Prohibited and controlled chemical substances

Yaskawa has selected a group of 78 controlled substances consisting of the 29 substances stipulated by the Japan Green Procurement Survey Standardization Initiative (JGPSSI) (refer to *Attachment 3.*) combined with 49 substances specified by Yaskawa. (Refer to *Attachment 1.*)

Yaskawa has also specified an additional 12 substances to the 6 substances stipulated by RoHS, totaling 18 prohibited substances. (Refer to *Attachment 2.*)

Refer to *Attachment 4* for examples of the main applications in which these substances are used, and to *Attachment 5* for examples of locations where the substance is used and calculation examples.

#### 4. Survey scope

Products which are designed, manufactured and sold by Yaskawa.

Scope for parts and materials are as follows.

- 1) Electronic devices, machined parts, raw materials, packaging materials
- 2) Functional unit, Module, Printed Circuit Board, etc
- 3) Solder, Adhesive, Ink, Grease, Tape, etc
- 4) Instruction manuals which includes ink, adhesive, label, coating materials etc.

#### 5. Meaning of "Contained"

In principal, when the substance is intentionally added or is clearly present, the substance is considered to be contained regardless of the amount. When the substance is not intentionally added, it is treated as an impurity. You are asked to record all possible impurities that can be grasped. However, new analysis is not necessary to be carried out. Furthermore, any substance groups or substance that are not recorded its content shall be considered to be unintentionally added.

A list of conceivable answers has been prepared and provided in *Attachment 6* for your reference.

Attachment 1. List of Yaskawa controlled substances (including prohibited substances)

No.	Classification	Name
1.	J	Antimony and antimony compounds
2.	J	Arsenic and arsenic compounds
3.	J	Beryllium and beryllium compounds
4.	J	Bismuth and bismuth compounds
5.	P/J	Cadmium and cadmium compounds
6.	P/J	Hexavalent chromium compounds
7.	P/J	Lead and lead compounds
8.	P/J	Mercury and mercury compounds
9.	J	Nickel and nickel compounds
10.	J	Selenium and selenium compounds
11.	J	Magnesium
12.	P/J	Tributyl tin oxide (TBTO)
13.	P/J	Tributyl tins and triphenyl tins
14.	P/J	Polybrominated biphenyls (PBBs)
15.	P/J	Polybrominated diphenyl ethers (PBDEs)
16.	P/J	Polychlorinated biphenyls (PCBs)
17.	P/J	Polychloronaphthalenes (Cl=>3)
18.	P/J	Vinyl chloride polymer (PVC)
19.	J	Brominated flame retardants (not including PBBs or PBDEs)
20.	P/J	Short chain chlorinated paraffins
21.	P/J	Asbestos
22.	P/J	Azo colorants
23.	P/J	Ozone depleting substances
24.	J	Phthalates
25.	P/J	Radioactive substances
26.	J	Copper and copper compounds
27.	J	Gold and gold compounds
28.	J	Palladium and palladium compounds
29.	J	Silver and silver compounds
30.		Indium and indium compounds
31.		Tungsten and tungsten compounds
32.		Manganese and manganese compounds
33.		Barium and barium compounds
34.		Molybdenum and molybdenum compounds
35.		Zinc and zinc compounds
36.		Aluminum compounds
37.		Metal carbonyls
38.		Chrome and trivalent chrome compounds
39.		Cobalt and cobalt compounds
40.		Zirconium and zirconium compounds
41.		Thallium and thallium compounds
42.		Tellurium and tellurium compounds
43.		Vanadium and vanadium compounds
44.	P	Mirex
45.		Hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs)
46.		Dioxins
47.		Chlorinated aliphatic compounds
48.		Chlordanes
49.		Polychlorinated benzenes
50.		Polychlorinated phenols
51.		Polychlorinated ethers

No.	Classification	Name
52.		Aldrins
53.		Endrins
54.		Dieldrins
55.		DDT
56.		Other chlorinated flame-retardants
57.	P	Formaldehyde
58.		Polycyclic aromatic hydrocarbons
59.		Trialkyl phenols
60.		Styrene dimer and trimer
61.		Boron and boron compounds
62.		Fluorine compounds
63.		Organic phosphorous compounds
64.		Ethylene oxide
65.		Beta-naphthylamine and beta-naphthylamine salts
66.		4-aminodiphenyl and 4-aminodiphenyl salts
67.		Sodium azide
68.		Bisphenol-A
69.		Benzidine and benzidine salts
70.		Benzene
71.		Simazine
72.		Methoxsalen
73.		Thiram
74.		Thiobencarb
75.		Sulpha hexafluoride
76.		Nitro compounds
77.		Ethylene glycol ethers and ethylene glycol ether acetate
78.		Cyanides

Classifications

J: Substances included in the list of 29 substances stipulated by JGPSSI.

P: Substances included in the list of 18 prohibited substances stipulated by Yaskawa.



**Attachment 3. Chemical Substances ( groups) chosen by JGPSSI**

No.	Group No	Major classification	Substance	Applicable laws and regulations	
Level A	1	A05	Metal & its compounds ※1	Cadmium and Cadmium Compounds	Statutory order No.1199 of DEC.23 1992 on the prohibition of sale,import,and manufacture of cadomium-containing products. : Denmark 76/769/EEC(+91/338/EEC), 91/157/EEC/93/86/EEC, 2000/53/EC/(EU/ELV), 2002/95/EC(EU/RoHS), 94/62/EEC, : EU directive Model Toxiics in Packaging : USA
	2	A07		Hexavalent Chromium Compounds	2000/53/EC(EU/ELV), 2002/95/EC(EU/RoHS), 94/62/EEC: EU directive Model Toxiics in Packaging : USA
	3	A09		Lead and Lead Compounds	76/769/EEC(+86/677/EEC), 91/157/EEC:93/86/EEC, 2000/53/EC(EU/ELV), 2002/95/EC(EU/RoHS), 94/62/EEC : EU directive Model Toxiics in Packaging : USA
	4	A10		Mercury and Mercury Compounds	76/769/EEC, 91/157/EEC (+98/101/EC), 2000/53/EC(EU/ELV), 2002/95/EC(EU/RoHS), 94/62/EEC : EU directive Model Toxiics in Packaging : USA
	5	A17		Tributyl Tin Oxide (TBTO)	The law concerning the examination and regulation of manufacture etc. of chemical substances(class 1specified chemical substances): Japan
	6	A18		Tributyl Tins & Triphenyl Tins	The law concerning the examination and regulation of manufacture etc. of chemical substances(class 2specified chemical substances): Japan
	7	B02	Halogenated organic compound	Polybrominated Biphenyls (PBBs)	2002/95/EC(EU/RoHS): EU directive (Dioxin Decree 07/15/1994: Germany)
	8	B03		Polybrominated Diphenyl ethers (PBDEs)	2002/95/EC(EU/RoHS): EU directive (Dioxin Decree 07/15/1994: Germany) pentaBDE, octaBDE⇒76/769/EEC(+2003/11/EC)
	9	B05		Polychlorinated Biphenyls (PCBs)	The law concerning the examination and regulation of manufacture etc. of chemical substances(class 1specified chemical substances): Japan 76/69/EEC: EU directive
	10	B06		Polychloronaphthalenes (C1=>3)	The law concerning the examination and regulation of manufacture etc. of chemical substances(class 1specified chemical substances): Japan
	11	B09		Short Chain Chlorinated Paraffins ※2	76/769/EEC(+2002/45/EC): EU directive (Dioxin Decree 07/15/1994: Germany)
	12	C01	Others	Asbestos	76/769/EEC(+91/659/EEC): EU directive
	13	C02		Azo Colorants ※3	76/769/EEC(+2002/61/EC+2003/3/EC):EU directive Consumer Goods Ordinance(04/1997): Germany
	14	C04		Ozone Depleting Substances ※4	Law concerning the Protection of Ozone Layer Through The Control of Specified Substances and Other Measures : Japan Montreal protocol, Section 611 on the Clean Air Act of 1990: USA, 76/769/EEC(+94/60/EEC,+97/64/EEC): EU directive
	15	C06		Radioactive Substances	Law for the Regulation of nuclear Source Material, Fuel Material Reactors 1986
Level B	16	A01	Metal & its compounds ※1	Antimony and Antimony Compounds	The substance groups of level B are those that apply to at least one of the criteria stated below. The criteria were decided by the discussion done among JGPSSIEIA and EICTA (on JAN. 30/31 2003). The level B list is not composed of so called hazardous substances and it is not a list of toxic substances.  a:Precious materials//substances that are present in electronics that provide economic value at end-of -life to recycles. b: Materials/substances that are of significant environmental or health and safety interest. c: Materials /substances that would trigger hazardous waste regulatory requirements d: Materials/substances that could have a negative impact on end-of-life management  EIA: Electronic industries Alliance EICTA: european Information and communication Technology Industry Association
	17	A02		Arsenic and Arsenic Compounds	
	18	A03		Beryllium and Beryllium Compounds	
	19	A04		Bismuth and Bismuth Compounds	
	20	A11		Nickel and Nickel Compounds ※5	
	21	A13		Selenium and Selenium Compounds	
	22	A16	Magnesium		
	23	B08	Halogenated organic compound	Brominated Flame Retardants ※6	
	24	B07		Vinyl Chloride Polymer (PVC)	
	25	C05	Others	Phthalates ※7	
	26	D01	Precious metal ※1	Copper and Copper Compounds	
	27	D02		Gold and Gold Compounds	
	28	D03		Palladium and Palladium Compounds	
	29	D04		Silver and Silver Compounds	

Remarks

- ※1 Including alloyed metal
- ※2 Short chain chlorinated paraffins(C10-13)
- ※3 Azo dyes and pigment forming certain amins.the subjected applications are limited to parts that may come into direct contact with human skin for a long time. Certain amines are the substancds listed 76/769/EEC the 19th Amendment refer to Attachment -5
- ※4 Regarding substances listed in the Montreal protocol, refer to Appendix3-1 for the details of classes. Regarding the class II substances although that are not prohibited substances the survey for them should be carried out.
- ※5 Nickel compounds except for alloyed metal (for example :stainless steel)
- ※6 Brominated flame retardant except for PBBs and PBDEs, please answer by ISO code 1043-4 or CAS No.
- ※7 Only applies to the following 5 compounds which have been subjected to EU risk assessment(Appendix-3)  
Dibutylphthalate, Di(2-ethylhexyl)phthalate, DiisononylPhthalate, 1-2Benzenedicarboxylic acid diisodecyl ester, Butyl Benzeyl Phthalate

**Attachment 3–supplement. Certain amines (formed through cleavage of one or more azo bonds)**

Substance	Chemical Formula	CAS No.
4-Aminoazobenzene	C <sub>12</sub> H <sub>11</sub> N <sub>3</sub>	60-09-3
<i>o</i> -anisidine	C <sub>7</sub> H <sub>9</sub> NO	90-04-0
2-naphthylamine	C <sub>10</sub> H <sub>9</sub> N	91-59-8
3,3'-dichlorobenzidine	C <sub>12</sub> H <sub>10</sub> Cl <sub>2</sub> N <sub>2</sub>	91-94-1
biphenyl-4-ylamine	C <sub>12</sub> H <sub>11</sub> N	92-67-1
Benzidine	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub>	92-87-5
<i>o</i> -toluidine	C <sub>7</sub> H <sub>9</sub> N	95-53-4
4-chloro- <i>o</i> -toluidine	C <sub>7</sub> H <sub>8</sub> ClN	95-69-2
2,4-toluenediamine	C <sub>7</sub> H <sub>10</sub> N <sub>2</sub>	95-80-7
<i>o</i> -aminoazotoluene	C <sub>14</sub> H <sub>15</sub> N <sub>3</sub>	97-56-3
5-nitro- <i>o</i> -toluidine	C <sub>7</sub> H <sub>8</sub> N <sub>2</sub> O <sub>2</sub>	99-55-8
3,3'-dichloro-4,4'-diaminodiphenylmethane	C <sub>13</sub> H <sub>12</sub> Cl <sub>2</sub> N <sub>2</sub>	101-14-4
4,4'-methylenedianiline	C <sub>13</sub> H <sub>14</sub> N <sub>2</sub>	101-77-9
4,4'-diaminodiphenylether	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub> O	101-80-4
<i>p</i> -chloroaniline	C <sub>6</sub> H <sub>6</sub> ClN	106-47-8
3,3'-dimethoxybenzidine	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub> O <sub>2</sub>	119-90-4
3,3'-dimethylbenzidine	C <sub>14</sub> H <sub>16</sub> N <sub>2</sub>	119-93-7
2-methoxy-5-methylaniline	C <sub>8</sub> H <sub>11</sub> NO	120-71-8
2,4,5-trimethylaniline	C <sub>9</sub> H <sub>13</sub> N	137-17-7
4,4'-thiodianiline	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub> S	139-65-1
4-methoxy- <i>m</i> -phenylenediamine	C <sub>7</sub> H <sub>10</sub> N <sub>2</sub> O	615-05-4
4,4'-methylenedi- <i>o</i> -toluidine	C <sub>15</sub> H <sub>18</sub> N <sub>2</sub>	838-88-0

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**Attachment 4-1 Main application example for chemical substances**

Main application example for chemical substances stipulated by JGPSSI (including six prohibited substances stipulated by RoHS)

NO	NO	Classification	Substance group	Main application	Main purpose
1	A05	Metal and its compounds	Cadmium and its compounds	Cadmium, Nickel-cadmium battery, Anti-rust plating, Cosmetic paint, Ink, Vinylchloride coating, Wire coating, Fuse, Fluoroluculent element, Optical glass (lens), Plastic parts, Plug, Commutator, Photo-coupler, Photo receiver, Switching power source, Plating, Solder, Socket relay, BNC terminal plate, Switches, Electric contact, inyl chloride, Resistive element, Thick film electrode material, Electrode plate	Pigment, Anti-rust surface treatment, Battery, Optical material, Stabilizer of electric contact, Photo-sensitive resistive element, Semiconductor (CdS), Plating material, Pigment for plastic, Fluoroluculent material for optical glass, Electric contact, Solder material, Contacts, Zinc plating, protection of contacts, Vinylchloride stabilizer.
2	A07		Hexavalent chromium and its compounds	Chromate treated steel plate, Battery, Color filter, Chromate treated anti-rust processing (Zinc plating, Non-electrolytic plating, Various kind of alloys, Diecasting, Almite dye, Black chromium plating, Screws Shaft, Nut.	Pigment, Paint, Ink, Catalyst, plating, Anti-rust surface treatment, Drying material for paint, Surface treatment (Chromate processing, Improvement of paint adhesion) Anti-rusting
3	A09		Lead and its compounds	Solder, Lead storage battery, Rubber, Plastic, Glass, Electrode lead storage battery, optical glass (lens), Mechanical parts (steel, aluminum, copper), Wire coat for Vinylchloride, Paint, Ink, Plastic protection plate for X-ray, Cathode ray tube for display monitor, Electric soldering, Die-bonding, Mechanical soldering, Vulcanized rubber parts, Ceramics, Electrode, Resistive parts, Plastic parts, Black color zinc plating, Electrolytic plating Semiconductor, Humidity sensor, Diebonding material sensor material, Vinylchloride.	Rubber hardner, Pigment, Dye, Paint, Lubricant, Plastic stabilizer, Bttery material, Free-cutting alloy material, Optical material, X-ray protector, Electric plating materials, Mechanical plating materials, Rubber vulcanizing agent, Strong dielectric substance, Plastic stabilizer, Plating material, Alloy contents, Plastic additive
4	A10		Mercury and its compounds	Electrode, Mercury battery, Dry battery, Lamp, (Mercury lamp, fluoroluculent tube, Back light for liquid crystal, Back light projector), Electric contant, Plastics, Paint, Ink, Rubber, Switch, Sensor, Mobilephone display	Fluoroluculent material, Electric contact material, Coloring pigment, Anti-corrosion agent, High efficiency light - emitting element, Antibacterial treatment
5	A17		Tributyl Tin Oxide (TBTO)	Printing ink, Ink for electronic parts, Flame-retardant plastics, Rubber elastomer	Anti-corrosion agent, Mildewcide, Paint, Pigment, Anti-dust pigment
6	A18		Tributyl Tins and Triphenyl Tins	Muffling agent (for noise cancelling)	Stabilizer, Anti-oxidization/Anti-aging agent, Anti-bacterial /anti-fungal agent, Anti-rust agent,
7	B02	Halogenated organic compounds	Polybrominated biphenyl (PBBs)	Printed circuit board, Plastic parts	Flame-retardant
8	B03		Polybrominated diphenyl ethers (PBDEs)	Printed circuit board, Plastic parts	Flame-retardant
9	B05		Polychlorinated biphenyl (PCBs)	Transformer/capacitor insulation oil, Stabilizer for fluoroluculent lamp	Insulation oil, Lubricant, Electric insulation media/solvent, Electrolytic liquid, Non-carbon paper
10	B06		Polychloro-naphthalenes (C>3)	Plastifiable rubber, Elastmer belt/roll, Packing materials, Sealant, Capacitor insulation oil, Plastic parts	Lubricant, Paint, Plastic stabilizer (Electric characteristics/ Frame-proof characteristics, Water-proof characteristics, Sterilization) Electric insulation media Flame-retardant
11	B09		Short chain chlorinated paraffins	Plastifiable vinylchloride parts, Wire coating, Printed circuit board, Conductor/Wiring, Alloy, Electric wire	Plastifiable vinylchloride, Flame-retardant
12	C01		Asbestos	Brake lining/pad, Insulator, Seal for chemical equipment Heat insulation for mechanical parts	Insulator, Filter, Friction material, Electric insulation material, Filler substances, Pigment, Paint, Tulc (indicated as including asbesto-fiber-like substance)
13	C02		Azo colorant/ Pigment	Electric wire coating	Pigment, Dye pigment, Colorant
14	C04	Others	Ozone depleting substances	Compressor, Fire extinguisher, Foaming plastics (EPS, Urethane), Halogene lamp	Coolant, Foaming alcohol, Extinguisher, Cleaner
15	C06		Radioactive substances	Optical glass	Optical characteristics
16	A01		Metal and its compounds	Antimony and its compounds	Optical glass (lens), Electric soldering, Ink, Wire coating material, Semiconductor device, Resistor, Plastiv parts, Steel plate, Transformer, Wire, Semiconductor additive (IC, Diode, Photo-coupler), Plastics for optical moulding Plastic material for IC etc, Motor, Label, Insulation tape, Rubber, Adhesive deflection plate, Printed circuit board, DC-DC converter, Vinylchloride wire, PET, PEN film
17	A02		Arsenic and its compounds	Semiconductor device, Ink, Light emitting device, Photo-coupler, Fiber glass, Steel plate, Semiconductor (IC, LED) Stainless steel, Heat radiation plate, Printed circuit board insulation tape, Liquid crystal glass, Optical glass (lens)	Pigment, aint, Dye, Anti-foaming agent for glass, n-type doopant, III - V family semiconductor board (GaSb) Flame-retardant, Surface treatment for copper foil, GaAs material, Decoloring for glass
18	A03		Beryllium and its compounds	Electrode, Metal mold, Copper circuit, Contact, Relay, Vibrator (Speaker) Switch, Ohosphoric copper plate, Jack Socket, Semiconductor spring, Washer, Suspension micro switch, Gold wire, Spring material	Ceramic materials, Alloy, Catalyst, Self-hardening alloy material, Spring alloy materials, Solder
19	A04		Bismuth and its compounds	Semiconductor terminal plating, Electric soldering, Copper circuit, Low temperature solder, Led alloy, Piezo-electric device, IC, Electrode (Ag pole).	Lead-free solder material, Solder material, Glass material
20	A11		Nickel and its compounds	Battery, Optical reflection film, Nickel cadmium/MH battery, Lead frame Thick film printed board, Semiconductor device, Decorative/anti-rust/functional plating, Magnetic recording media, Ink, Capacitor, Electrode, Stainless steel, Steel plate, Ferrite	Pigment, Paint, Black coloring agent for zinc and brass, Optical thin film material, Battery materials, Conductor printing paste materials, Semiconductor materials, Surface treatment, Magnetic thin film materials, Plating, Electrode, Catalyst, Alloy
21	A13		Selenium and its compounds	Semiconductor, Photo-sensitive element, Ink, Photo-coupler.	Photo-sensitive element, Pigment, Paint, Catalyst, Oxidizing agent, Semiconductor, Light receiving device, Opt-electric cell
22	A16		Magnesium	Battery, Optical glass.(lens) Anti-reflection film for optical glass, Diecasting, External parts, TV chasis, Alloy housing, Plastic products,	Alloy, Optical thin film materials, Optical materials, Structural materials, Alminum alloy(Duralmin), Magnesium alloy, Fatty acid salt
23	B08	Halogenated organic compounds	Brominated flame retardant	Plastic parts, Molded rubber/elastomer products, Semiconductor, Package for LCD, TV chasis	Flame-retardant, Sealing for molded package
24	B07		Polyvinyl chloride	Polyvinyl chloride plastics,	Elevtorical insulation characteristics, Anti-chemicals Transparency characteristics, Coating materials,
25	C05	Others	Phthalate ethers	Safty glass, wire coating, Plastic parts, Polyvinyl chloride, Soft type PVC plastics	Plastifiable agent, Dye, Pigment, Ink, Adhesive agent, Lubricant,
26	D01	Prcious materials	Copper and its compounds	Electric wire, Semiconductor, Optical reflection film, Thick film printed board, Assembled wiring board, Electric wiring (Lead frame, bare wire), Mechanical parts, Ink, Conductor, Electrode, Printed circuit board, Plastic parts Printed conductor/wiring, Alloy, Electric wire, Terminal, Ferrite	Anti-rust surface treatment, Conductor printing paste materials, Electric/Electronic materials, Alloy materials, Pigment, Dying pigment, Plating materials, Wiring
27	D02		Gold and its compounds	Semiconductor, Bonding wire, Semiconductor device (Thyristor), Optical reflection film, Contact plating, Electrode	Plating, Surface treatment, Electric/Electronic material, Semiconductor material, Optical materials, Contacts
28	D03		Paradium and its compounds	Solder plating parts.(Lead frame) Thick film printed board Non-electrolytic plating, Electrode	Surface treatment for soldering parts, Conductor printing paste materials, Non-electrolytic plating catalyst
29	D04		Silver and its compounds	Silver battery, Contact alloy for braker, Paste diebonding Thick film printed board, Optical reflection film, Semi-transparent film, Conductive paste, conductive tape, Contact plating, Electrode	Plating, Electric/Electronic materials, Conductor printing paste materials, Optical materials, Electric contact material Solder material



Attachment 4-2 **Additionally selected chemicals by YASKAWA**

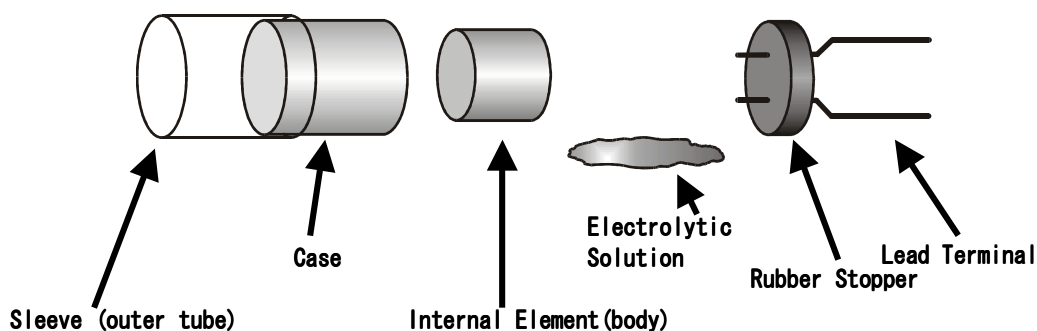
	NO	Major classification	Substance group	Main application
	1	AA01	Indium and its compounds	dental use
	2	AA02	Tungsten and its compounds	
	3	AA03	Manganese and its compounds	Dry battery, Oxidant, Ferrite, Glass coloring/decoloring, Glass
	4	AA04	Barium and its compounds	Bulb and opical glass, Storage battery, Desulpherization, Metal heat treatment agent, Pigment, Paper manufacturing
	5	AA05	Molybdeum and its compounds	Special steel, heat resistant material, Resistor catalyst, Lubricant, Coloring agent, Feed additive
	6	AA06	Zinc and its compounds	Plating process, Water treatment chemical
	7	AA07	Aluminum compounds	
	8	AA08	Metal carbonyl	Catalyst
	9	AA09	Chromium and tervalent chromium compounds	Catalyst for synthesis, Plating, Organic synthesis, Dye, Catalyst,
	10	AA10	Cobalt and its compounds	Magnetic material, Special steel, Carbide tool, Storage battery, Plating, Alloy, Catalyst, Ceramic ware coloring agent, Photo engraving
	11	AA11	Zirconium and its compounds	
	12	AA12	Thalium and its compounds	Alloy
	13	AA13	Tellurium and its compounds	Special steel, Rubber sulfurizing accellator, Coloring agent, Alloy, Solar battery, Glass
	14	AA14	Vanadium and its compounds	Alloy steel, For fast breeder reactor, Super conducting material, Various catalyst, Ceramic ware coloring pigment, Reagent
	15	BB01	Mirex	Insecticide, Ant killer, Flame-retardant (resin, rubber, electrical products etc)
	16	BB02	HFCs (Hydrofluobocarbons)	
	17	BB03	PFCs(Perfluorocarbons)	Chlorofluorocarbons, Semiconductor etching, Cleaning agent, Insulation, Refrigerant
	18	BB04	Dioxins	Others (unintentional product)
	19	BB05	Chlorinated aliphatic compounds	
	20	BB06	Chlordanes	Agricultural chemicals (Insecticide)
	21	BB07	Poychlorinated benzenes	Rubber products,
	22	BB08	Polychlorinated phenols	Agricultural chemicals (Insecticide)
	23	BB09	Polychlorinated ethers	Flame-retaedant
	24	BB10	Aldrins	Agricultural chemicals (Insecticide)
	25	BB11	Endrins	Agricultural chemicals (Insecticide)
	26	BB12	Dieldrins	Agricultural chemicals (Insecticide)
	27	BB13	DDT	Agricultural chemicals (Insecticide), Anti-mold agent, Antseptics for woods, Bug repellants
			Other chlorinated flame-retardant	Flame-retardant
	28	CC01	Formaldehyde	Surphactants, Anti-fungal agent, Preservatives, Synthetic resins
	29	CC02	Polycyclic aromatic hydrocarbons	Others (unintentional product)
	30	CC03	Trialkylphenols	
	31	CC04	Styrene dimer and trimer	
	32	CC05	Boron and its compounds	Deacidification agent for metal fusing, Glass, Preservatives, Artificial jewelry, Dye, pigment, Tanning, Ceramic ware, Semiconductor gas, Catalyst
	33	CC06	Fluorine and its compounds	Semiconductor etching agent, Metal cleaning agent, Chlorofluorocarbon raw material, Catalyst, Glass emulsion
	34	CC07	Organic phosphorus compounds	Sterilization agent
	35	CC08	Ethylene oxide	Perfumes, Interface activators, Detergents, Bactericides, Anti-mold/anti-pollution agent, Synthetic intermediates, Fiber heat treatment agents
	36	CC09	Beta-naphthylamine and its salt	
	37	CC10	4-aminodiphenyl and its salt	Rubber products, Ink, Dye
	38	CC11	Sodium azide	
	39	CC12	Bisphenol A	Resin raw material, Stabilizer for vinylchloride, Others (Antioxidant)
	40	CC13	Benzidine and its salt	
	41	CC14	Benzene	Solvent, Cleaning agent, Synthetoc intermediates
	42	CC15	Simazine	
	43	CC16	Methoxalen	
	44	CC17	Thiram	
	45	CC18	Thiobencarb	
	46	CC19	Sulpha hexafluoride	Circuit braker, insulation material, Insulation gas
	47	CC20	Nitrocompounds	Others (unintentional product)
	48	CC21	Ethylene glycol ether & ethylene glycol ether acetate	
	49	CC22	Cyamides	Organic synthesis raw material, Fluorolucet dye raw material, Agricultural chemical, Adhesive, Plating, Photo agent, Pharmerceutial

## Attachment 5. Part Component Unit Examples

The following is a collection of part names to serve as a reference for filling out the application item in the survey. Calculate and enter the amount contained for the substance concerned even for other part types, by referencing the calculation examples below and the component parts given in the following pages.

[Part Name Display Examples of and Sample Amount Contained Calculations]:

Electrical Parts (Resistors, capacitors, etc)



\* Sample amounts contained for each part component and their calculations

Component	Applicable substance	Amount Contained	Calculation
<b>Aluminum electrolytic capacitor</b>			
Sleeve(outer tube): Polyvinyl chloride Weight 0.3g	Polyvinyl chloride Dibutyl phthalate Antimony trioxide	50 % 40 % 10 %	$0.3 \text{ g} \times 0.50 = 150 \text{ mg}$ $0.3 \text{ g} \times 0.40 = 120 \text{ mg}$ $0.3 \text{ g} \times 0.10 \times 0.835 = 25 \text{ mg}$ (Since Antimony trioxide is a metal compounds, multiply the metal conversion factor of 0.835 from the Sample Substance List by the composition ratio, and calculate the amount of antimony metal.)
Case	Not contained		
Internal element (body) Weight 2.0g	Antimony Lead	20.0 mg 9.0 mg	20 mg 10 mg
Electrolytic solution	Not contained		
Lead terminal: Weight 0.1 g	Lead Copper	11.0 mg 20.0 mg	10 mg 20 mg
Rubber stopper	Not contained		

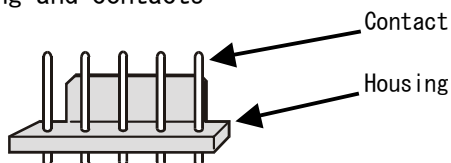
The replies are as follows

Substance Group	Amount Contained	Application	Purpose of use	Amount contained calculation details
A01:Antimony and its compounds	45 mg	Sleeve, etc.	Flame retardant	$25\text{mg}+20\text{mg}=45\text{mg}$
A09:Lead and its compounds	20 mg	Lead terminal, etc.	Solder plating	$9\text{mg}+11\text{mg}=20\text{mg}$
B07:Polyvinyl chloride (PVC)	150 mg	Sleeve	Main ingredient	—
C05:Phthalate esters	120 mg	Sleeve	Plasticizer	—
D01:Copper and its compounds	20 mg	Lead terminal	Main ingredient	—

Using the sample calculations on the previous page and the component parts below as a reference, calculate the amounts of applicable substances contained for other part types, and enter the results.

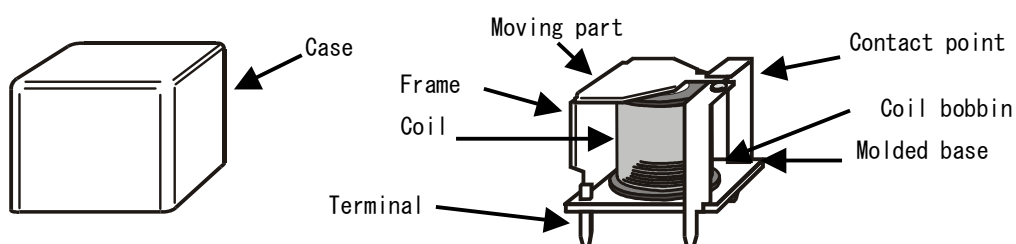
[Component Part Example 1] Connectors

Component parts: Housing and contacts



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

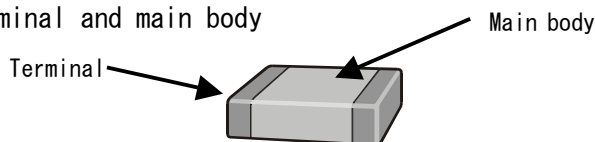
Component parts: Part case(molded plastic etc.) metal components (lever, frame, terminals, etc.)moving part(contact points, etc)



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

[Component Part Example 3] Surface-mounted chip parts

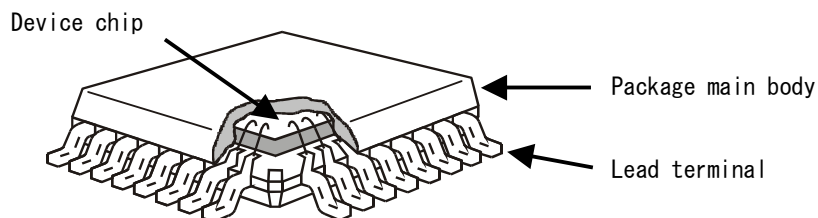
Component parts: terminal and main body



\*The main body of the part is made of multiple materials and the substance concerned is present, break it down. Ex. Part main body → ceramic and internal electrode

[Component Part Example 4] Semiconductor devices

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

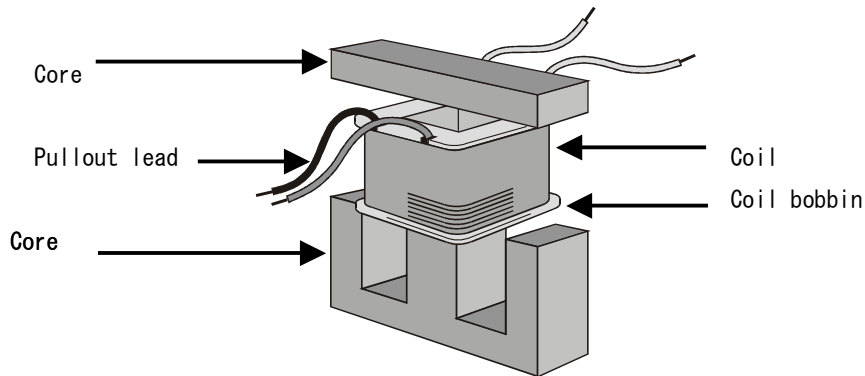


\*Please pay particular attention to any flame retardants in the package plastic, and the lead material and treatment

\*Make the reply concerning the device chip as best you can

[Component Part Example 5] Transformers and inductors

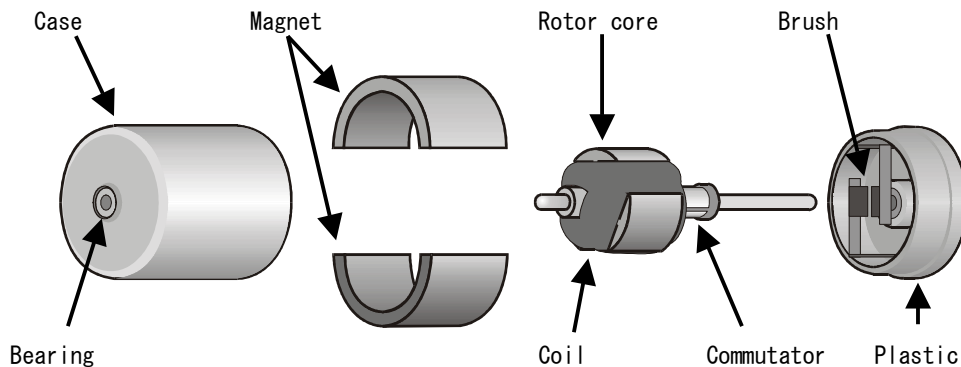
Component parts: Core, coil, bobbin, lead wire, insulator, case frame, etc.



\*Please 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

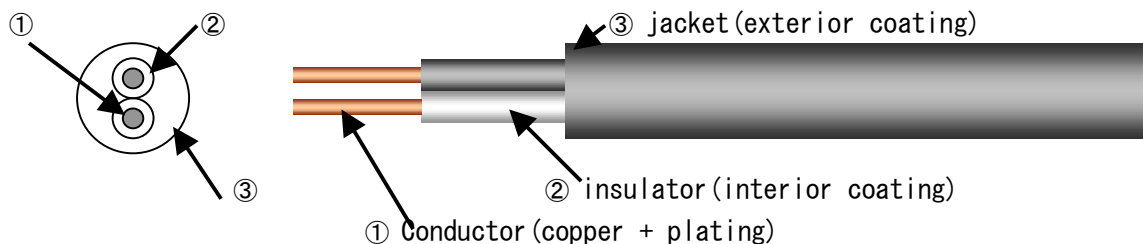
Component parts: Part case(molded plastic, etc.), metal parts(shaft, rotor core, terminal, frame, etc.), brush, magnet, coil, and other



\*Please 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.  
 \*Calculate the amount contained per part from the amounts contained in each of the part components, when the substance is contained in lead wire and electronic circuits.

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

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



## Attachment 6 Frequently asked question

NO	Item	Question	Answer
1	Survey object	Is it necessary to consider as the survey object material in case of the material used in the manufacturing process of a product or or component?	The material mounted on a product or a component like solder, grease, adhesive, paint, ink or seal is the survey object. Another survey object is whether an ozone depleting substance is used or not. However the material like cleaning agent used in the process but not remained on the product itself is not the survey object.
2		Is the packing material the survey object?	Basically the packing material is not the survey object. However if the packaged parts are sent to our customer as is, it is the survey object. Please reply if we request to reply.
3		Is it necessary to consider as the survey object material the ozone depleting substance that is not used for the product?	It is necessary to reply in the basic survey sheet that ozone depleting material is used or not in the manufacturing process. Furthermore if the material is used in the process it is necessary to reply as the contained chemicals and its contained quantity.
4		Is the recycled material the survey object?	Recycled material is the survey object. Recycled material should be surveyed carefully its history and be conformed whether cadomium, lead and/or brominated flame-retardant etc are contained or not. If contained its quantity should be stated.
5		How to reply regarding raw material like mould material or metal? Is it enough to reply based on the MSDS and/or MIL sheet?	Because sometimes there is not enough chemical contents data in the MIL sheet or MSDS in case of raw metal like aluminum alloy, please state contained chemicals after asking raw material manufacturer or your supplier. (MSDS does not show below 0.1wt% chemical content)
6	Allowable contents	How to input in case that there is chemical contents range?	If there is the range for chemical contents please state maximum value.
7		How to consider in case that grasping chemical contents quantity is difficult like plating?	In case chemicals are added intentionally, it is necessary to state its contents even though contents quantity is small. If grasping contents quantity is difficult please state estimated value based on the engineering grounds.
8	Survey of chemical contents	How to consider if the supplier reject to reply because chemical contents quantity is the know-how?	This survey of chemicals is done from the point of observing the statutory regulations, protection of earth environment. Therefore please request to reply after limiting the objective chemicals. Replied data is used basically within our company only, however if required by our outside stakeholder, we will not disclose the supplier name, type or name of delivered parts. If necessary please contact our window.
9	Method & contents of reply	All items requiring survey take time. Is it allowed to reply partly within requested chemical substances?	As described in the guideline, please reply under the priority with 6 chemical substances specified by RoHS, 18 prohibited substances specified by Yaskawa, and 29 chemical substances specified by JGPFSS.
10		How to do if a supplier cannot follow this chemical survey.	Because this survey data is the basic data for the evidence of keeping statutory regulations, all suppliers are required to reply. If you have difficulty please contact our window after making your problem clear.
11		Is the survey necessary to extend to secondary or tertiary suppliers?	Under your responsibility please survey secondary or tertiary suppliers?
12		Chemical contents data is same in case of raw material suppliers. In this case is it necessary to state one by one component?	Please state one by one even though the data is same. If there is no description we consider the component or material has no relevant chemicals.
13		Is it necessary to disclose all example chemicals regarding brominated flame-retardant?	Please disclose all brominated flame-retardant by CAS.NO. or ISO1043-4 code.
14	Detail of survey	How much degree should componets be surveyed in detail?	Chemical substances should be surveyed and replied one by one component as shown in example.
15		Is it necessary to survey the unit like PWB assembly or motor to the structural component level?	Regarding chemical substances please survey and reply one by one structural component levelas shown in example.
16	Objective	How much degree does the reply status of this survey affect on business relation with YASKAWA?	The object of this survey is to collect basic data for the evidence of keeping statutory regulation. Final purpose is to keep the regulations by substituting the current hazardous component to non-hazardous component. Hereafter disclosure of chemical substances content will become the business condition between YASKAWA and a supplier.
17		Are objective chemical substances prohibitted to use?	Not all objective chemical substances are prohibitted. The substances we described as prohibitted is prohibitted, however there are some exemptions according to the application. And some prohibitted chemicals have starting time of prohibition, therefore please refer the prohibitted chemical substance table defined by YASKAWA..
18		Regarding some current supply parts to YASKAWA which are not listed in the table, is it necessary to survey or reply?	Basically it is unnecessary. This time we will survey regarding currently used for specified products only, therefore some components for other products may not be listed. However in case of individual product which is required to suevey by our customer, it will be required to survey by YASKAWA case by case.
19		Will objective chemical substance increase in future?	We consider objective chemical substance will increase according to the statutory regulations or social circumstance in future, maybe not decrease. We consider to continue checking the regulations and trend of social opinions.
20		Is it necessary to survey components or materials which the manufacturer has already stopped production?	Please survey relevant components or materials even if the manufacturer has stopped production because YASKAWA may use them selecting from our stock.
22		For components with the same name but different component codes, is it necessary to reply both?	Please reply each by each.