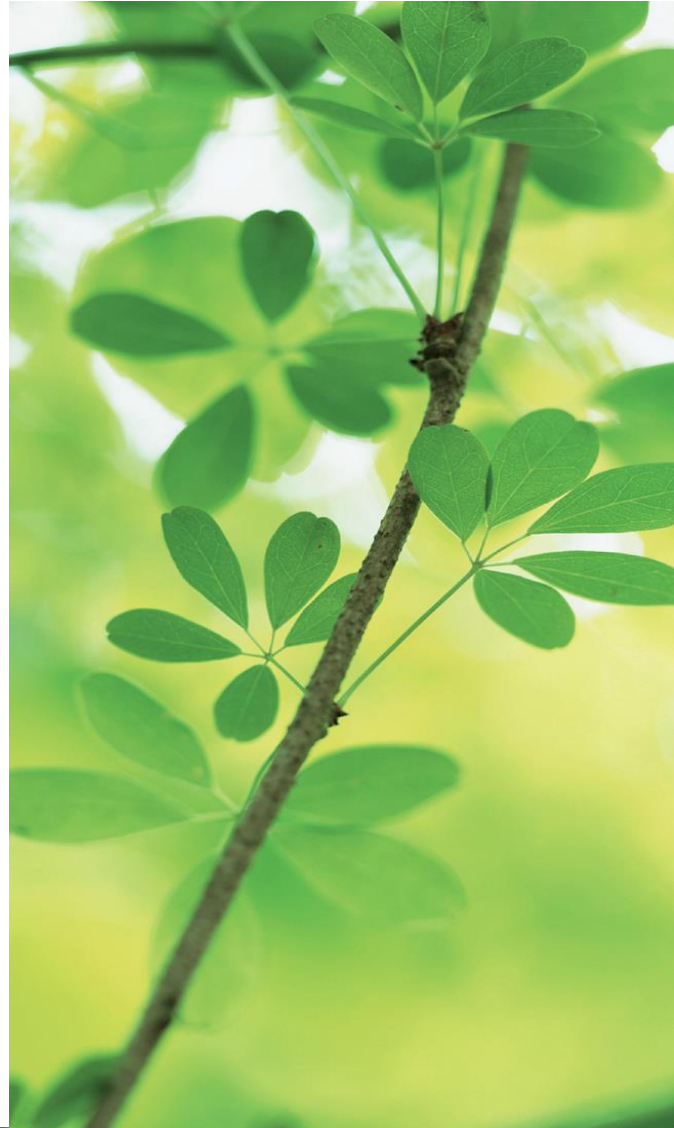


Green Procurement Guidelines

(Ver. 10.1: Revised Apr 2020)



Hitachi Group

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1. Hitachi Group's Code of Conduct and efforts for environmental activities

Our Mission is to “contribute to society through the development of superior, original technology and products.” The Hitachi Group Codes of Conduct was created to assist officers and employees in making decisions and taking actions in accord with Our Mission, the Hitachi Founding Spirit as well as Our Vision. The Codes stipulate the needs not only for environmental activities toward a sustainable society but also for procurement activities to be a part of honest and fair business operations. We sincerely request our suppliers' cooperation in promoting the environmental activities related items included in the “Hitachi Group Codes of Conduct”.

Hitachi Group Codes of Conduct (Extract)

1. Toward a Sustainable Society

- (1) We will contribute to resolving social issues by promoting innovative solutions, accelerating collaborative creation with partners and stakeholders, and further integrating social and environmental responsibility into our business activities.
- (2) We will strive to develop technologies that contribute to social development and use them with due consideration of their impact on society.
- (3) We envision a low-carbon society, a resource efficient society, and a harmonized society with nature. To this end, we will endeavor to reduce CO₂ emissions, use water and other resources efficiently, and minimize impacts on natural capital throughout our value chain.

(snip)

2.2 Relationships with Suppliers

- (1) With a global vision, and mindful of the long-term perspective, we will find qualified suppliers and build fair and equal partnerships with them, working together to build mutual understanding and trust.
- (2) In selecting suppliers, we will thoroughly review the quality, reliability, delivery time, and price of the materials they provide as well as their business stability and technological capability. We will give due consideration to their adoption of social responsibility practices, including areas such as the abolition of unfair discrimination, the elimination of child labor and forced labor, and environmental conservation.

(snip)

Formulated in August 2010

Revised in February 2018

2. Hitachi Group's philosophy of green procurement

2.1 Policy of green procurement

As global warming, resource depletion, ecosystem destruction, and other environmental issues grow more serious, companies face increasing demands and expectations to reduce the environmental burden of their business activities.

Our goal is to achieve a more sustainable society by promoting global production that reduces the environmental burden of a product throughout its life cycle under our Environmental Vision below.



As part of this activity, green procurement aims for procurement of products and services that impose less environmental burden through the proper use of chemical substances, preservation of ecosystems, energy efficiency, longer durability, resource conservation, ease of recycling, disassembling, and disposing of parts, from suppliers who are positively addressing environmental activities.

2.2 Requests to our suppliers

The Hitachi Group asks for suppliers' understanding and support of Hitachi's Green Procurement, and for their cooperation in the following:

- Suppliers are requested to positively address environmental activities.
- Suppliers are requested to reduce the environmental burden of products delivered to the Hitachi Group.

The details are shown below.

(1) Items related to the environmental activities of suppliers

- Suppliers are requested to make, implement, and manage an action plan for Environmental Management System (EMS).
- In the case that the Hitachi Group conducts an audit for green procurement, suppliers are requested to fulfill the items specified in 4.2(1)(c) Items related to environmental protection activities (20 items).
- Suppliers are requested to construct a system that properly controls chemical substances included in their products.
- We believe that obtaining international environmental certifications, such as ISO14001 and EMAS, and Japanese environmental certifications, such as KES, Eco Stage, and Eco Action 21, is an effective measure for efficiently managing EMS. We therefore recommend that our suppliers obtain and maintain these environmental certifications.

(2) Items related to reducing the environmental burden reduction of delivered products

To reduce the environmental burden of delivered products, suppliers are requested to comply with 4.2(2)(a) Reducing the environmental burden of delivered products (12 items).

- EMS: Environmental Management System; promoting business while systematically considering environmental protection
- ISO14001: Composed of ISO registration bodies (International Organization for Standardization); an internationally recognized environmental certification system
- EMAS: Eco-Management Audit Scheme; environment management system of the EC (at that time) enforced in April 1995.
- KES: Kyoto Environmental Management System Standard; Environmental certification system in Japan for small to medium enterprises, promoted by a specified non-profit organization, KES Environment Agency
- Eco-Stage: Environmental certification system for small to medium enterprises, promoted by a limited-liability intermediate corporation, Eco Stage institute
- Eco-Action 21: Environmental certification system for small to medium enterprises, promoted by the Institute for Global Environment Strategies - Center for Sustainability

(3) Items related to management of information on chemical substances present in supplied products

In order to use the presence of chemical substances in supplied products for work such as information disclosure in supply chains, follow the instructions in Chapter 3 to report management and information on the presence of chemical substances.

3. Regulating chemical substances included in suppliers' products

3.1 Chemical substances regulated by Hitachi Group

The Hitachi Group uses the "chemical substances regulated by the Hitachi Group guidelines" to classify chemical substances contained in procured products into two separate categories, prohibited substances and controlled substances.

Chemical substances regulated by the Hitachi Group guidelines

| Classification | Regulated substances | Main legal regulations |
|--|--|---|
| Level 1 - Prohibited substances | These chemical substances are prohibited for inclusion in supplied products. Under regulations inside and outside Japan, these chemical substances are basically prohibited for use in products (including packaging), but might be used in products supplied to the Hitachi Group. For details, see Separate table 1 or Attached list 1. | See Separate table 1 or Attached list 1 |
| Level 2 - Controlled substances | Under regulations inside and outside Japan, these are substances whose actual use must be known, and for which <u>appropriate</u> management is required, or controlled substances whose recycling and proper disposal must be considered. This also includes substance groups whose inclusion in supplied products might be restricted according to utility. For details, see Separate table 2 or Attached list 2. | See Separate table 2 or Attached list 2 |

Note that the regulation factors (such as substance groups, control levels, and threshold values) might vary depending on the operating division in the Hitachi Group due to circumstances such as industry trends. Pay attention to the division's requested items, and check the items accordingly.

In addition, we might request an investigation of the chemical substances used in the production, storage, and transport stages before delivery (even if the substances are not included in the delivered product) with the objective of conserving supplies. Suppliers' cooperation is also requested.

3.2 Warranty of non-inclusion of chemical substances in procured products

In the Basic Agreement entered into when trading materials, the Hitachi Group requests our suppliers to make certain considerations for the environment. Regarding chemical substances in their products, suppliers are requested to conduct quality control by warranting the non-inclusion of chemical substances in their products as necessary.

If non-inclusion of chemical substances in products is stated as a purchase specification requirement in the trade, documentations such as "Warranty of Non-Inclusion Concerning Banned Chemical Substances in Products" (Warranty of Non-Inclusion) must be submitted to the Hitachi Group as a delivery specification requirement.

"Non-inclusion" indicates that the following is rationally proved regardless of whether inclusion of the substance is intentional:

- Certain chemical substances are not included, or they are included but at an amount less than the designated threshold value.

3.3 Guidelines for regulating information about chemical substances included in products (prohibition and control)

When collecting information about chemical substances contained in products, choose the best way to do so from an economical and engineering standpoint.

Use of level 1 prohibited substances groups is basically prohibited according to regulations inside and outside Japan, so legally, their non-inclusion in products must be guaranteed.

For level 2 controlled substance groups, appropriate management of inclusion information is required regardless of whether the substances are included in the products. Suppliers are requested to file reports in all cases; even statements such as "There is no information available that shows inclusion of the chemical substances" are to be reported when appropriate.

3.4 Regarding changes in materials, manufacturing methods, and information about included chemical substances

If any changes in materials, manufacturing methods, production location, major manufacturing equipment, persons in charge of manufacturing, etc. are to be made for procured products, suppliers are required to submit a notice about the details of the change and the scope of effect each time. In addition, for information on inclusion of chemical substances, submission of a notice is mandatory when a new inclusion is discovered, or when previously-reported inclusions have changed.

4. Requests to our suppliers for their cooperation in green procurement investigations

With the support of our suppliers, the Hitachi Group will reinforce its endeavors to provide environmentally-conscious products. Our suppliers (in an upstream supply chain) are encouraged to cooperate with us in the investigation of their status.

4.1 Investigation overview

(1) Investigation categories

Investigations are to be conducted for each of the following categories:

- (i) The status of the supplier's environmental activities
- (ii) The status of reduction of the environmental burden of procured products
- (iii) Information about chemical substances included in procured products

(2) Method for replying to investigations

Suppliers are kindly requested to provide the Hitachi Group with information by means of its web-based Green Procurement System (A Gree'Net).

Advance user registration is required to access A Gree'Net. Contact the procurement department to which you deliver your products, or the Environment Data System Center in Sustainability Promotion Division. For details about input operations, see the manual for the Green Procurement System (A Gree'Net) after log in to this system.

Green Procurement System (A Gree'Net) login screen:

<https://portal.chemicalmanagement.ext.hitachi.co.jp/portal/static/html/index.htm>

Contact information for the Environment Data System in Sustainability Promotion Division:

encsr.support.rp@hitachi.com

(3) Investigation frequency

Suppliers are requested to review the following items periodically (once a year) and enter updated data into the Green Procurement System (A Gree'Net):

- (i) the status of their environmental activities
- (ii) the status of reducing the environmental burden of products delivered to Hitachi

Investigations related to (iii) information on chemical substances included in the products, will be requested when necessary. If applicable, enter your answers into the Green Procurement System (A Gree'Net).

4.2 Content of investigation

(1) The status of environmental activities of suppliers

Investigations of the following items will be made for each supplier (or each business place of a supplier):

(a) Items related to environmental certifications

■ Acquisition of the ISO 14001 certification or other external certifications approved by Hitachi

- 1) Already obtained the ISO 14001 certification.
- 2) Already obtained another EMS certification.
- 3) Facilitating or have finalized a plan to acquire external certifications including ISO 14001.

(b) Items related to endeavors for Green Procurement

■ Status of planning Green Procurement

- 1) Implementing Green Procurement.
- 2) Planning to implement Green Procurement.

(c) Items related to environmental activities (20 items)

■ Corporate philosophy and policy

- 1) Have a corporate policy for environmental protection
- 2) Setting environmental guidelines to ensure continuous improvement in the prevention of global warming, the cyclical use of resources, and the preservation of the ecosystem.
- 3) The company's environmental policy is committed to observing legal restrictions.
- 4) Company environmental policy is known to all employees and available to any third party.

■ Plan and organization

- 5) Have a goal/target for environmental protection.
- 6) Assigning specific organizations/persons to carry out relevant responsibilities toward the goal/target.
- 7) Have an implementation plan to achieve the goal/target.

■ Environment assessment/system

Control and assess the following items in the manufacturing process to strive for improvement:

- 8) Reducing water pollution.
- 9) Reducing air pollution.
- 10) Reducing noise and vibration.
- 11) Treating waste properly and reducing the amount of waste disposal.
- 12) Reducing energy consumption (electricity, gas, fuel, etc.).
- 13) Purchasing raw materials to reduce environmental burdens.
- 14) Reducing the use and discharge of hazardous chemical substances.
- 15) Have a product assessment program.
- 16) Have a systematic plan for emergencies.
- 17) Have any internal environment audit program.

■ Provision of education, training, and information

- 18) Implementing an environmental education program.
- 19) Implementing training for personnel engaged in work that might significantly affect the environment.
Have a list of such personnel.
- 20) Providing information related to environmental protection.

(d) Manufacturing process information

■ Use or non-use of ozone-layer-depleting substances in the manufacturing process

- 1) Used in the product manufacturing process.
- 2) Not used in the product manufacturing process.
- 3) Under survey.

(2) The status of reducing the environmental burden of procured products

(a) Reducing the environmental burden of delivered products (12 items)

Regarding products the Hitachi Group procures from suppliers, suppliers are requested to comply with the items below. Suppliers are also requested to make the same considerations for raw materials and parts that they procure themselves.

■ Resource saving

- 1) Making an effort to reduce weight and size.
- 2) Using recycled parts or resources (recycled material content rate).
- 3) Taking into consideration product durability improvement.
- 4) Endeavoring to properly use water.

■ Energy saving

- 5) Taking into consideration energy saving during use/stand-by time (reduction rate of energy).

■ Recycling

- 6) Collecting and recycling products (recycling rate).
- 7) Using uniform and standardized materials.
- 8) Considering ease of disassembly and sorting.

■ Packaging materials

- 9) Reducing packaging materials and considering collection, reuse, and recycling.

■ Provision of information

- 10) Providing environmental information related to products.

■ Preservation of ecosystems

- 11) Endeavoring to reduce the burden on ecosystems
- 12) Endeavoring to properly use chemical substances.

(3) Information about chemical substances included in procured products

(a) Information about included chemical substances to be input into A Gree'Net

In accordance with Attachments 1 and 2, enter the following information:

- (i) Basic product information
- (ii) Product composition information
- (iii) Information about inclusion or non-inclusion of regulated chemical substances
- (iv) Information about the submission or non-submission of a Warranty of Non-Inclusion

(b) Investigation format for chemical substances included in products

A Gree'Net provides flexible support for formats of controlling chemical substances included in products, that are widely adopted in the industrial world, primarily considering usability for suppliers.

The following formats can be used to input information to A Gree'Net:

- chemSHERPA-CI
- chemSHERPA-AI
- JAMA sheet
- JAMP MSDSplus ※1 (2018/7~)
- JAMP AIS ※1 (2018/7~)
- JGPSSI survey response tool ※1

JAMP: Joint Article Management Promotion consortium: <https://chemsherpa.net/english/jamp/about>

MSDSplus and AIS: Information transmission format for chemical substances provided by JAMP. MSDSplus complements MSDS. AIS covers chemical substances that are included in molds.

chemSHERPA : A format for communicating information of chemical substances which JAMP provides.

chemSHERPA-CI is for chemical substances contained in chemical goods,

chemSHERPA-AI is for those contained in articles.

JGPSSI: Japan Green Procurement Survey Standardization Initiative

(already resolved by the shift toIEC62474)

JAMA : Japan Automobile Manufactures Association,Inc.: <http://www.jama-english.jp/>

※1 : The latest law & regulation may not be included.

Appendixes

Separate table 1 (Level 1: Prohibited substances group list)

- Separate table 1 shows each level 1 (prohibited substances) substance or substance group, and its representative control value and relevant regulations.

For details about other utility, control values, and relevant regulations that fall under this restriction, see Attached list 1.

- Any items corresponding to those excluded from application according to laws and regulations are excluded. However, you must report the reason for exclusion (in the case referred to the RoHS orders (EU), see Attached list 3-1 or Attached list 3-2).

| No. | Chemical substance | Legal limit | Main relevant regulations |
|-----|--|---|--|
| 1 | Cadmium and its compounds ^{#1} | 100ppm or less 100ppm or less (packaging materials) ^{#5} | RoHS directive (EU) Packaging directive (EU) |
| 2 | Hexavalent chromium compounds ^{#1} | 1000ppm or less 100ppm or less (packaging materials) ^{#5} | RoHS directive (EU) Packaging directive (EU) |
| 3 | Lead and its compounds ^{#1} | 1000ppm or less 100ppm or less (packaging materials) ^{#5} | RoHS directive (EU) Packaging directive (EU) |
| 4 | Mercury and its compounds ^{#1} | 1000ppm or less 100ppm or less (packaging materials) ^{#5} | RoHS directive (EU) Packaging directive (EU) |
| 5 | Polybrominated biphenyls (PBBs) | 1000ppm or less | RoHS directive (EU) |
| 6 | Polybrominated diphenyl ethers (PBDEs) | 1000ppm or less | RoHS directive (EU) |
| 7 | Tri-substituted organostannic compounds ^{#2} Tributyltin compounds (TBT) Triphenyltin compounds (TPT) Bis (tributyltin) oxide (TBTO), etc. | Intentional use is prohibited, however, 1000ppm or less as tin | Japan Chemical Examination Law/Type 1 specified chemical substances REACH regulation (EU) |
| 8 | Polychlorinated biphenyls (PCBs) | Intentional use is prohibited | Japan Chemical Examination Law/Type 1 specified chemical substances POPs |
| 9 | Polychlorinated terphenyls ^{#2} (PCTs) | Intentional use is prohibited | REACH regulation (EU) |
| 10 | Polychlorinated naphthalenes (with 1 or more chlorines) | Intentional use is prohibited | Japan Chemical Examination Law/Type 1 specified chemical substances EU POPs |
| 11 | Short-chain chlorinated paraffins ^{#2} ^{#3} | Intentional use is prohibited | POPs REACH regulation (EU) |
| 12 | Asbestos ^{#2} | Intentional use is prohibited, however, 1000ppm or less | REACH regulation (EU) |

| No. | Chemical substance | Legal limit | Main relevant regulations |
|-----|---|---|--|
| 13 | Ozone-layer-depleting substances (Class I) ^{#4} For substances that apply, see Attached list 4 | Intentional use is prohibited | Montreal Protocol on Substances that Deplete the Ozone Layer |
| 14 | PFOS and its analogous compounds For substances that apply, see Attached list 5 | Intentional use is prohibited | Japan Chemical Examination Law/Type 1 specified chemical substances POPs |
| 15 | 2-(2H-1,2,3-Benzotriazole-2-YL)-4,6-di-tert-Butylphenol | Intentional use is prohibited | Japan Chemical Examination Law/Type 1 specified chemical substances REACH regulation (EU) |
| 16 | Hexachlorobenzene | Intentional use is prohibited | Japan Chemical Examination Law/Type 1 specified chemical substances REACH regulation (EU) Regulation on Classification, Labelling and Packaging of substances and mixtures POPs |
| 17 | Dimethyl fulmarate (DMF) ^{#2} | 0.1ppm or less | REACH regulation (EU) |
| 18 | Hexabromocyclododecane (HBCD or HBCDD) For substances that apply, see Attached list 9 | Intentional use is prohibited | Japan Chemical Examination Law/Type 1 specified chemical substances POPs |
| 19 | Bis (2-ethylhexyl) phthalate (DEHP) | 1000ppm or less | RoHS directive (EU) Products or parts correspond to EU RoHS/Cat8&9: Translation to Level 1 in 18th January, 2021 REACH regulation (EU) |
| 20 | Benzyl butyl phthalate (BBP) | 1000ppm or less | |
| 21 | Dibutylphthalate (DBP) | 1000ppm or less | |
| 22 | Diisobutyl phthalate (DIBP) | 1000ppm or less | |
| 23 | Perfluorooctanoic acid (PFOA) and its salts and PFOA-related compounds (For applicable substances, see Attached list 6&10) | Intentional use is prohibited, however, 25 ppb or less of PFOA including its salts, or 1000 ppb of one or a combination of PFOA-related compounds | POPs REACH regulation (EU) Japan Chemical Examination Law/Type 1 specified chemical substances |

Separate table 2 (Level 2: Controlled substances group list)

- Separate table 2 shows each substance or substance group that belongs to level 2 (controlled substances). For details about relevant laws, see attachment 2.
- For substances that count as REACH/restricted substances, or for details, see Attached list 6, and for details about REACH/permitted substances or SVHC substances, see Attached list 7.
- In order to use this for work such as information disclosure in supply chains, report information on the presence of the chemical substances below.

| No. | Chemical substance or substance group name |
|-----|--|
| 1 | Antimony and its compounds ^{#6} |
| 2 | Arsenic and its compounds ^{#6} |
| 3 | Beryllium and its compounds ^{#6} |
| 4 | Nickel and its compounds ^{#6} |
| 5 | Selenium and its compounds ^{#6} |
| 6 | Un-specific brominated flame retardants ^{#7} |
| 7 | Polyvinyl chlorides (PVCs) and its mixture, its copolymer |
| 8 | Phthalate esters other than No.19 - No.22 of Separate table 1 List |
| 9 | Ozone-layer-depleting substances (Class II: HCFC) ^{#8} (For applicable substances, see Attached list 4) |
| 10 | Radioactive substances |
| 11 | Di-substituted organostannic compounds (DBT, DOT, etc.) |
| 12 | Cobalt and its compounds ^{#6} |
| 13 | Azodyes and azocolourants which form specific amines (For applicable substances, see Attached list 8) |
| 14 | Formaldehyde |
| 15 | Benzene |
| 16 | Fluorine-based greenhouse gases |
| 17 | Polycyclic-aromatic hydrocarbons (PAHs) corresponding to REACH/restriction substance (For applicable substances, see Attached list 6) |
| 18 | REACH/restriction substances (For applicable substances, or for details, see Attached list 6) |
| 19 | REACH/authorization substances (For applicable substances, see Attached list 7) |
| 20 | RECAH/SVHC (For applicable substances, see Attached list 7) |
| 21 | JAMP declarable substances ^{#9} (Including chemSHERPA ^{#10}) |

Notes on Separate tables 1 and 2:

- #1: For metals, alloys are included.
- #2: REACH/restriction substances whose utility and treatment is judged to satisfy all regulations.
- #3: Applies to short-chain chlorinated paraffins of carbon chain length 10 through 13.
- #4: Class I substances according to the Montreal Protocol on Substances that Deplete the Ozone Layer (ozone-depleting chemicals excluding HCFC).
- #5: For packaging materials, the total of four substances must be 100ppm or less.
- #6: For metals, alloys are included.
- #7: Those other than PBBs and PBDEs listed in Separate table 1 (Prohibited).
- #8: Class II substances according to the Montreal Protocol on Substances that Deplete the Ozone Layer.
- #9: Declarable substances regulated by the Joint Article Management Promotion consortium (JAMP).

Substances to which the following laws and industry standards apply are included:

1. Japan Chemical Examination Law/Type 1 specified chemical substances
 2. Japan Industrial Safety and Health Law (substances whose manufacture is prohibited)
 3. Poisonous and Deleterious Substances Control Law (specific toxic substances)
 4. RoHS directive
 5. ELV directive
 6. CLP (Annex VI Table3.1/CMR-Cat 1a and 1b as well as Table3.2/CMR-Cat 1 and 2)
 7. REACH Annex XVII (restriction substances)
 8. REACH authorization substance candidates (SVHC)
 9. POPs regulation Annex I
 10. ESIS PBT (parts that apply to the PBT evaluation criteria)
 11. GADSL
 12. IEC62474
- #10 : Declarable substances regulated by chemSHERPA

Substances to which the following laws and industry standards apply are included:

1. Japan Chemical Examination Law/Type 1 specified chemical substances
2. Toxic Substances Control Act (TSCA)(Section 6)
3. ELV directive
4. RoHS directive
5. POPs regulation Annex I
6. REACH SVHC(authorization substance candidates) and Annex XIV(authorization substance)
7. REACH Annex XVII(Restricted substances)
8. GADSL
9. IEC62474
10. Medical Device Regulation(MDR) Annex I 10.4 Substances

For details, see the following document and list:

chemSHERPA declarable substance handbook and chemSHERPA declarable substance reference list (Latest version)

<https://chemsherpa.net/english>

Attachment list

Attached list 1: List of details on utility/control values/reference laws relating to each level 1 (Prohibited) substance group

Attached list 2: List of details on utility/control values/reference laws relating to each level 2 (Managed) substance group

Attached list 3-1: RoHS directive/list of exemptions (Annex 3)

Attached list 3-2: RoHS directive/list of exemptions (Annex 4)

Attached list 4: Ozone-layer-depleting substances list

Attached list 5: PFOS and its analogous compounds list

Attached list 6: REACH/restriction substance list

Attached list 7: REACH/authorization substance/SVHC list

Attached list 8: Specific amine list

Attached list 9: Hexabromocyclododecane list

Attached list 10: List of Perfluorooctanoic acid (PFOA), its salts and PFOA-related compounds

(Home page for Attached lists: http://www.hitachi.com/environment/library/pdf/green_annex_en.pdf)

Attachment 1 (Survey of chemical substances)

■ Survey of chemical substances included in raw materials, parts, and half-finished and finished products

To determine each denominator and numerator, follow the definitions for calculating the content percentage of the mass of included chemical substances shown below.

Even if the content percentage is no more than the threshold value, follow the policy for registering surveyed values.

| | Unit of survey | Unit and definition of surveyed values | Policy of registering the surveyed values | |
|---|--|---|---|---|
| | | | Substance intentionally added | Substance potentially added unintentionally |
| Level 1 Prohibited substances group | RoHS: For each homogeneous materials Not RoHS: For each supplied product or for each arbitrary class into which supplied products are divided | Unit: a) The mass of the denominator and the mass of the numerator or b) The mass and concentration of the denominator for each region that includes chemical substances Definition: The maximum value (theoretical or actual measured value) | Register regardless of the value. | Also register if the substance is potentially added. |
| Level 2 Controlled substances group | | Unit: The mass of the substances concerned included in each delivered product, or the mass of the substances concerned included in each class obtained by dividing delivered products into arbitrary classes Definition: The mean value (theoretical or actual measured value) or the maximum value (theoretical or actual measured value) | Register regardless of the value. | Also register if presence is confirmed and the value is obtained. |

- Note that individual controls for substances groups not listed above might also be requested depending on the product group to be surveyed.
- Some prohibited substances were used for various applications in the past as additive agents to achieve product performance characteristics. These might even be included in current products.

Various cases of erroneous use, mixing, and contamination of prohibited substances have been reported, including those usually contained in raw materials in nature, remaining in products after generation as by-products or used as subsidiary materials in the manufacturing process, being mixed into products due to shared production lines or the use of alternative materials available in inventory.

Suppliers are requested to properly control prohibited materials in order to prevent their mixture into products in excess of the threshold value by understanding their characteristics and tracking their history, including those exempt from laws and regulations.

■ Definition of the denominator and the numerator for calculating the content percentage of the mass of included chemical substances

(1) Definition of the denominator

RoHS regulations : Homogeneous materials

Regulations other than RoHS : For each procured product or for each arbitrary class into which procured products are divided

[Definition of homogeneous material]

Homogeneous material refers to material that cannot be mechanically separated into other materials.

The following are homogeneous substances or homogeneous materials:

| Composites | Judgment criteria |
|--|--|
| Chemical compounds, polymer alloys, metallic alloys, etc. | Homogeneous materials |
| Materials that have undergone painting, printing, plating (chromate treatment) or other treatments | Individual monolayers are considered homogeneous material. (In the case of zinc plating chromate treatment, the zinc plating layer and the chromate treatment layer are considered separate homogeneous materials. However, if it is difficult to obtain the values for individual monolayers by separating multilayers, the minimum separable unit is considered a homogeneous material unit (JIS C 0950).) |

(2) Definition of a numerator

“Chemical substances” refers to chemical elements or compounds.

| Chemical substances | Definition of a numerator |
|---|--------------------------------|
| Metals and metallic compounds etc. | Mass of metallic elements |
| Substances other than metals and metallic compounds | Mass of the chemical substance |

The molecular mass relevant to the CAS number is to be filled in (actually larger than the mass of metallic elements in the molecule) for the potential REACH SVHC.

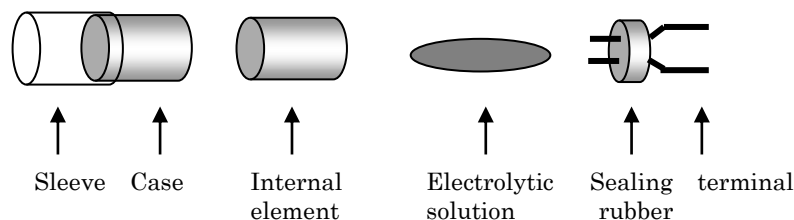
■ Example registration of product composition information (Electrical part)

The Hitachi Group defines products, regions, and compositions (chemical substances) as shown in the table and class chart below.

- Exempted substances not included in prohibited or controlled substances can all be categorized as “other chemical substances”.
- “Chemical substances” refers to chemical elements or compounds.

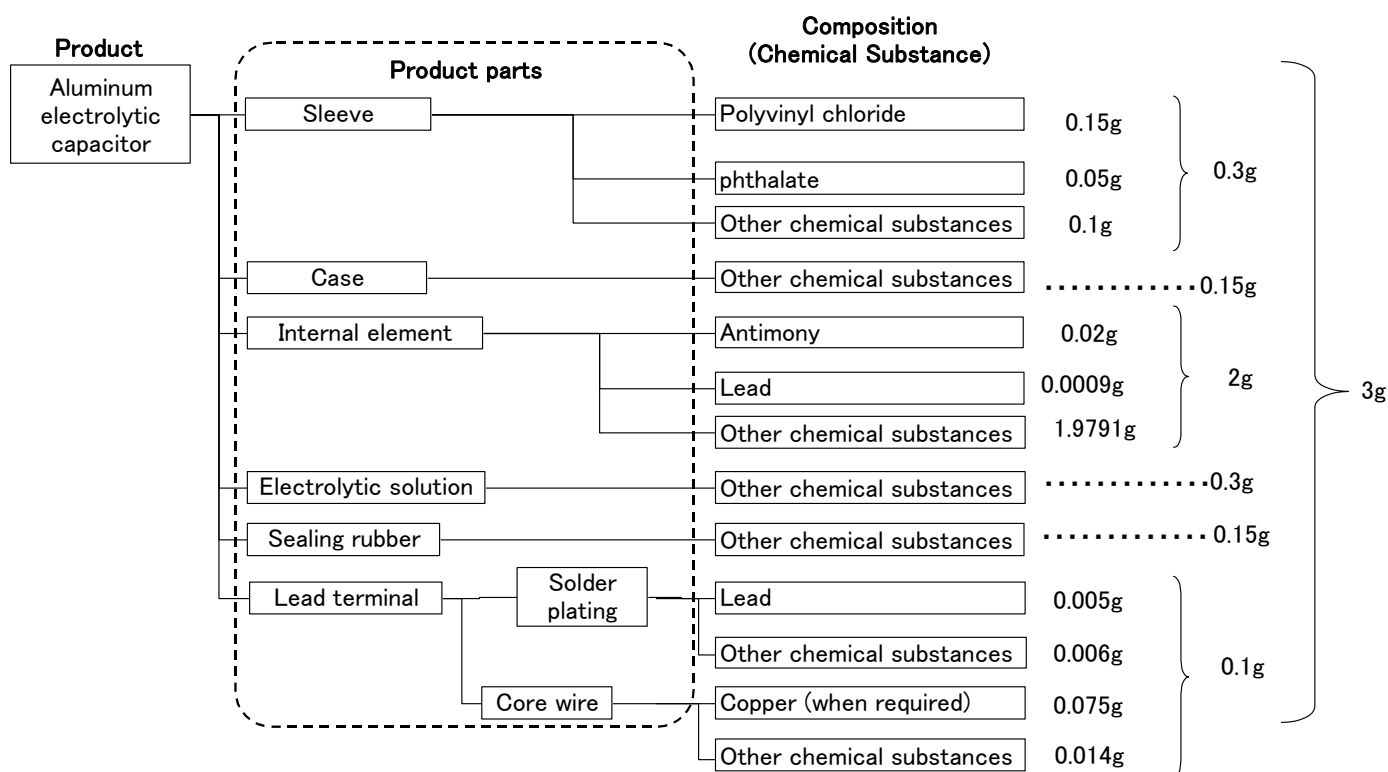
- "Product parts" refers to the minimum unit that can be mechanically separated from other materials and is composed of homogeneous substances. (For details, see the A Gree'Net user's manual.)

Aluminum electrolytic capacitor (weight: 3g)



Product: Aluminum electrolytic capacitor

| Product parts | | Composition (Chemical substance) | | | | |
|-----------------------|----------------|----------------------------------|---------------------------|-----------|-----------|-------|
| Product parts | Mass /g | Chemical substance name | Use | CASnumber | Content/g | |
| Sleeve (Outer tube) | 0.3 | Polyvinyl chloride | | 9002-86-2 | 0.15 | |
| | | Phthalate | Plasticizer | 117-81-7 | 0.05 | |
| | | Other chemical substances | | — | 0.1 | |
| Case | 0.15 | Other chemical substances | | — | 0.15 | |
| Internal element | 2 | Antimony | | 7440-36-0 | 0.02 | |
| | | Lead | | 7439-92-1 | 0.0009 | |
| | | Other chemical substances | | — | 1.9791 | |
| Electrolytic solution | 0.3 | Other chemical substances | | — | 0.3 | |
| Sealing rubber | 0.15 | Other chemical substances | | — | 0.15 | |
| Lead terminal | Solder plating | 0.011 | Lead | Solder | 7439-92-1 | 0.005 |
| | | | Other chemical substances | | — | 0.006 |
| Core wire | 0.089 | Copper (when required) | | 7440-50-8 | 0.075 | |
| | | Other chemical substances | | — | 0.014 | |



Attachment 2 (Measurement method)

■ Measurement method for the mass of included chemical substances

- (1) Measurement method for specified substances regulated by RoHS Directive etc.

Use the measurement method shown in the Hitachi Group's "Analysis guideline for RoHS Directive"

http://www.hitachi.com/environment/library/pdf/RoHS_en.pdf

or the equivalent with the same or higher accuracy.

- (2) Measurement method for other chemical substances

For the measurement method for other chemical substances, follow the instructions of the

Quality Assurance Division of the business office where your products are delivered.

| No. | Month | Revision History |
|----------|----------|--|
| Ver. 6.2 | Mar 2011 | 2.1 Insertion: “preservation of ecosystems”. |
| | | 2.1 Insertion: The “Hitachi Environment Vision” symbol. |
| Ver. 6.3 | May 2012 | 2.2(1)() “environmental protection activities” (19 items -> 20 items). |
| | | 2.2(2) “Environmental load reduction of products” (10 items -> 11 items). |
| | | 4.2(1)(c) Items related to environmental activities(19 items -> 20 items). |
| | | 4.2(1)(c) Insertion : 13) Raw materials purchasing for * burdens. |
| | | 4.2(1)(c) 14) Reduce the use and * substances ((13) -> (14)). |
| | | 4.2(2)(a) “Reducing the environmental burden of products” (10 items -> 11 items). |
| | | 4.2(2)(a) ■Preservation of ecosystems <- ■Chemical substances. |
| | | 4.2(2)(a) Insertion : 10) Suppliers are endeavoring * ecosystems. |
| | | 4.2(2)(a) 11) Suppliers are endeavoring * substances((10) -> (11)). |
| Ver. 7.0 | Apr 2013 | Revision of controlled substance groups in Separate table 1 and Separate table 2. Correction of related body text according to the above changes. |
| Ver. 7.1 | Jun 2015 | Revision of a part of link-address and division name |
| Ver. 8.0 | May 2015 | Revision of controlled substance groups in Separate table 1 and Separate table 2 |
| Ver. 8.1 | Feb 2016 | Add the login address of Green Procurement System (A Gree’Net) in 4.1 |
| Ver. 8.2 | Apr 2016 | Revision of Analysis guideline for RoHS Directive in attachment2. Ver2.0→ Ver3.0 |
| Ver. 8.3 | Sep 2016 | Change of the number of chlorine of Polychlorinated naphthalenes (with 3 or more chlorines → with 2 or more chlorines) |
| Ver. 8.4 | Oct 2016 | Revision of Hitachi’s Environmental Vision. Add the 4.2(2)(a) Reducing the environmental burden of delivered products 4). (11items->12items) |
| Ver. 8.5 | Sep 2017 | Revision of Main relevant regulations in Separate table 1 |
| Ver. 8.6 | Mar 2018 | Adding chemSHERPA related information |
| Ver. 9.0 | Jan 2019 | Revision of controlled substance groups in Separate table 1 and Separate table 2 |
| Ver. 9.1 | Jan 2020 | 1. Reflection of revision of Hitachi Group Codes of Conduct |
| | | 2. Change of Hitachi’s Environmental Vision symbol |
| | | 4.1.(2) Change of Green Procurement System (A Gree’Net) login URL |
| | | 4.2(3)(b) Change of JAMP and JAMA link URLs |
| Ver.10.0 | Jan 2020 | Revision of controlled substance groups in Separate table 1 and Separate table 2 |
| Ver.10.1 | Apr 2020 | 1. Reflection of repeal of Hitachi Action Guidelines for Environmental Conservation |



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