

Green Procurement Guideline

Technology to Inspire Innovation



JAE Group

Revision History

Rev.	Revised Date	Summary
1	2005.11.09	<p>JKCN-030: (1) Addition of document No., revision No., page numbers and revision history. (2) Addition of “reaction residues and impurities, etc.” following the regulation trends in customers and the RoHS Directive. (3) The content thresholds represent the upper limit, not inclusive. The above additions and revision are made, and the Guideline is newly issued.</p>
2	2007.7.31	<p>JKCN-061: (1) Change of JAE LOGO with the slogan. (2) Clarification of the threshold level for substances contained in packing materials. (4) Change as a result of banning the use of cobalt chloride in packing materials. (5) Change and clarification of "Environmental Questionnaire 1" as a result of the revision of the Materials Regulation. (6) The scope of azo compounds is specified. (7) Change due to the revision of the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.</p>
3	2009.3.31	<p>JKCN-081: (1) Copper, gold, silver and palladium in the scope of survey are deleted from Table 2. (2) More detailed description is given in the note of Table 2-1. (3) External trends are included in Table 2. (4) Item 4: Entirely revised in view of the current state. (5) Description of Table 2: No.15; Benzotriazol is added, which is a Class I Specified Substance by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc., No.18; the expression relating cobalt chloride is changed, No.19; PFOS is added as prohibited substance, Nos. 34 to 37 deleted, entirely revised, unnecessary explanation is deleted. (6) Form-1 is deleted. (7) Definitions only are given for explanation of the terms.</p>
4	2010.8.30	<p>JKCN-085: (1) Item 2 “Scope” is more specifically defined. (2) Change of chemical substance group names in No. 6 of Table 2 and Detailed Description of Table 2. (3) Nos. 20 to 23 added in Table 2 and Detailed Description of Table 2. (4) DBTs and DOTs are also excluded for No.38 of Table 2 and Detailed Description of Table 2. (5) Nos. 39 to 44 are added in Table 2 and Detailed Description of Table 2. (6) Paragraph (2) is added in Item 4. (7) Chemical substances added in No. 15 of Detailed Description of Table 2, according to the revised Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (8) No. 35 “Other Brominated Flame Retardant” only in Detailed Description of Table 2 is shifted to No. 40. (9) No.38 DBTs and DOTs in Detailed Description of Table 2 are shifted to No.20 and No.21 respectively (Change from substances to be controlled to prohibited substances).</p>

5	2011.4.5	JKCN-088: (1) The preamble on page 2 is made simpler and clearer. (2) Item 2 “Scope” is more specifically defined. (3) In Paragraph 3.2.1, the compliance status of the uncontrolled substances in the RoHS Directive is more clearly stated. (4) In Nos. 20 and 21 of Detailed Description of Table 2, “Other DBT compounds” and “Other DOT compounds” are added respectively in compliance with the JGPSSI Ver. 4.11. (5) In No. 39 of Detailed Description of Table 2, new SVHCs are added and the note is revised.
6	2011.10.21	JKCN-094: (1) Correction of the erroneous substance name in No. 9 of "Detailed Description of Table 2". (2) No. 20 and No. 21 of "Detailed Description of Table 2," addition of the content threshold of environmental impact substance. (3) Deletion of the substances specified as prohibited in other chemical substance groups in No. 39 of "Detailed Description of Table 2". Addition of SVHCs and change of the note.
7	2012.4.19	JKCN-100: (1) JAE Basic Philosophy is reflected in the preamble on page 2. (2) The column of “JGPSSI Substances Group Classification No.” of “Table 2” is deleted. (3) Addition of the note that chemical substances of Nos. 20 and 21 in “Table 2” comply with EU rules. (4) REACH SVHCs are newly added to No. 39 of Detailed Description of “Table 2”, and the note is revised.
8	2012.10.22	JKCN-106 : REACH SVHCs are newly added to No. 39 of Detailed Description of “Table 2”.
9	2013.3.21	JKCN-116 : REACH SVHCs are newly added to No. 39 of Detailed Description of “Table 2”.
10	2013.10.4	JKCN-122 : (1) PCTs are added to No.7 of “Table 2” and No.7 of “Detailed Description of Table 2.” (2) Some substances in No.39 of “Detailed Description of Table 2” are revised and transcribed to Nos. 4, 16 and 17. (3) REACH SVHCs are newly added to No.39 of “Detailed Description of Table 2.” (4) The description below No.39 of “Detailed Description of Table 2” is changed.
11	2014.9.2	JKCN-133 : (1) New REACH SVHC are added to Nos.16, 34 and 39 of “Table 2.” (2) Nos. 35 and 39 of “Detailed Description of Table 2” exclude the substances which are listed in other substance group. (3) New object substances are added to No.15 of “Table 2.”
12	2016.3.7	JKCN-141 : (1) Changes according to the revised directive RoHS 2 are reflected in Paragraph 3.2.2, Nos. 25 and 36 in “Table 2” and Nos. 25, 36 and 41 of “Detailed Description of Table 2.” (2) BNST is added in No.24 and the note of “Table 2” and No.24 of “Detailed Description of Table 2.” (3) New REACH SVHC is added to Nos. 1 and 41 of “Detailed Description of Table 2.” (4) Chemical substances designated by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. are added to No.15 HBCDD in “Detailed Description of Table 2.”

Green Procurement Guideline

JAE Group, as a member of society, respects the natural environment and biological diversity, and by fulfilling its corporate social responsibility through environmentally friendly industrial activity, conducts operations, making contributions to creating a prosperous society through environmental awareness.

In order to achieve this goal and offer products to customers, based on environmental awareness, JAE Group uses materials and/or parts with low environmental impact, to be used in our manufacturing processes.

1. Purpose

For materials, parts, etc. procured by JAE Group (hereinafter called “JAE”) from suppliers, this Guideline provides the basis for procuring green parts, etc.

In case of any conflict between the criteria in this Guideline and detailed specifications of parts, etc. for productions requested from JAE, the detailed specifications shall govern.

Moreover, the criteria of this Guideline will be revised on an as-needed basis according to changes in future laws/regulations or the social situation.

2. Scope

This Guideline applies to raw materials, parts and packaging materials used for products to be sold or supplied by JAE, and to the supplementary materials, etc. used in their manufacturing processes. If JAE deems that it may be possible for hazardous substances to adhere to the materials through contact with products, equipment, jigs and tools, measuring instruments, desk equipment, etc. which are used in the manufacturing process, they are also in the scope of this Guideline.

3. Fundamental view of green procurement

The green procurement of parts, etc. to be obtained from suppliers consists of the following two criteria.

- (1) Establishment of an environmental preservation scheme (Establishment of environmental management system)
- (2) Criteria on procured products (Use of any substance that impacts the environment is not permissible)

3.1 Establishment of supplier’s environmental preservation scheme

3.1.1 Establishment of environmental management system

Suppliers need to establish an environmental management system.

The environmental management system means a system according to the international standard [ISO 14001 (Environmental management system)] or an original environmental management system established by the supplier (any kind of system is acceptable.)

The original environmental management system shown above shall meet the following criteria:

- The executive has announced the policy of environmental preservation in a certain form.

- A person has been assigned to environmental management and the environmental management organization has been established within the supplier.
- Environmental impact shall be understood and efforts for reducing environmental impact shall be made at all times.
- Meetings shall be held for environmental management activities periodically.

3.1.2 Activities for recovery/recycling of materials used, packing, packing materials

Actively recover and recycle used materials, packing materials, etc.

3.1.3 Actions for ozonosphere protection and prevention of global warming

Engage energetically in the battle against global warming, including fully phasing out ozone-depleting substances, cutting back on use of greenhouse effect substances, and adopting energy-saving activities regulated by the Montreal Protocol.

3.1.4 Substances that impact the environment and are restricted in the manufacturing processes

Use of environmental impact substances are restricted in the manufacturing processes and shall be controlled according to the following classification of (1) to (3). The designations of these substances that impact the environment are listed in **Table 1** and **Table 1-1** below.

- (1) Prohibited substances: The substances absolutely prohibited for use in the manufacturing processes of parts, etc. by laws/regulations, etc.
- (2) Substances to be avoided: The substances with voluntary targets and every effort should be made to avoid or cut back on their use in the manufacturing processes of parts, etc.
- (3) Uncontrolled substances: The relevant substances are listed in **Table 1-1** below, and must be omitted from restrictions due to technological difficulties at present. Suppliers are requested to continue to make efforts to find alternatives or cut back usage of these substances.

Table 1 Environmental impact substances being restricted in manufacturing process

Classification	No.	Substance name	Evidence
Prohibited substances (16 items)	1	CFC	Montreal Protocol, ODC (Ozone-Depleting Chemicals)
	2	1, 1, 1-trichloroethane	
	3	Carbon tetrachloride	
	4	Halon	
	5	HBFC	
	6	HCFC	
	7	Methyl bromide (Bromomethane)	
	8	Trichloroethylene	Water Pollution Control Law, Soil Pollution Countermeasures Law
	9	Tetrachloroethylene	
	10	Dichloromethane (Methylene chloride)	
	11	1, 1, 2-trichloroethane (Ethylene chloride)	
	12	1, 2-Dichloroethane	
	13	1, 1-Dichloroethylene (Vinylidene chloride)	
	14	1, 2-Dichloroethylene	
	15	Chloroform (Trichloromethane, Methyl trichloride)	
	16	Formaldehyde	
Substances to be avoided (2 items)	17	PFC (Perfluorocarbon)	Global warming substance (Alternatives for chlorofluorocarbon)
	18	HFC (Hydrofluorocarbon)	

Table 1-1 Uncontrolled substances

Substance name	Application	Restriction
ODC	Cooling medium for air conditioners and freezing machines	New installation is not permissible.
Formaldehyde	For electroless plating of PC boards	Reasonable efforts to be continued to find its alternative
PFC, HFC	Semiconductor etching gases	Compliance with its cutback target, feasibility study on degradation and recovery
Methylene chloride	For use in polycarbonate production processes	Solvent for polymerization

3.2 Criteria for procured products

3.2.1 Chemical substances where inclusion into procured product is prohibited, avoided or controlled

Inclusion of chemical substances that are prohibited, or to be avoided or controlled into procured products shall be managed according to the following classification of (1), (2), and (3). The designation of such chemical substances is listed in **Table 2** below.

The term “contained substances” used herein means substance contained in a part, etc. It represents not only substances intentionally added and/or filled into such part, etc. for the purpose of improving performance/function, but also applies to substances not intentionally added and/or filled, such as reaction residues or impurities.

Provided, however, that the substances used in a manufacturing process but not contained in a procured product shall not be included within the scope of this Guideline and the uncontrolled substances as specified in the RoHS Directive shall be exempted from this Guideline in accordance with the RoHS Directive.

These chemical substances are chosen for the reason of legal regulations, a substance that might possibly affect environment, health, or hygiene and safety.

- (1) Substances prohibited from inclusion: Substances which are forbidden from inclusion into parts, etc. by laws/regulations, etc.
- (2) Substances whose inclusion should be avoided: A voluntary target should be established and efforts should be made to avoid including the substance in parts, etc. or reduced as much as possible.
- (3) Substances whose inclusion should be controlled: Substances whose content in parts, etc. should be controlled.

3.2.2 Threshold level for products in which substances that impact the environment are contained

The threshold level for each of the following ten (10) substances is defined for control. When a target substance consists of two or more materials, it is evaluated individually by making a mechanically inseparable substance (homogeneous material) into the minimum unit. In addition, our customer's request is given a higher priority than our criteria when the customer has set up a stricter threshold level.

Table 2-1 Threshold level in which environmental impact substances are contained [less than ppm]

Environmental Impact Substance	Cd	Pb	Hexavalent Cr	Hg	PBB	PBDE	Specific phthalates			
							DEHP	DBP	BBP	DIBP
Threshold level	75 (metals)	750 (metals)	750 (metals)	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	5 (nonmetals)	100 (nonmetals)	100 (nonmetals)				This inclusion will be prohibited from July 22, 2019			

Note: The total admissible concentration of heavy metals such as Hg, Cd, Cr (VI) and Pb, contained in each homogeneous material (e.g., resin, ink, coating material) constituting packing materials, shall be less than 100 ppm in weight. The admissible concentration of Cd and Pb in each part of plastics (including rubber), coating material and ink shall conform to the regulations for Cd, Cd compounds, Pb and Pb compounds.

3.2.3 Continuous procurement of materials/parts containing substances that impact the environment

(1) Prohibited substances

In order to meet our customer's requests, procurement of materials/parts containing prohibited substances may be continued. In such cases, JAE will identify such substances and also ask suppliers for cooperation.

(2) Inclusion of substances that must be avoided and controlled substances

Although JAE will respond individually to the prohibited substances designated by our customer, JAE will also ask suppliers for cooperation to identify contained materials/parts as in the case of (1) above.

Table 2 Chemical substances whose inclusion into products is prohibited, avoided or controlled

Classification	No.	Chemical Substance Group Name
Substances to be prohibited	1	Cadmium and its Compounds
	2	Mercury and its Compounds
	3	Polybrominated Biphenyls (PBBs)
	4	Polybrominated Diphenyl Ethers (PBDEs)
	5	Tributyl Tin Oxide (TBTO)
	6	Tri-Substituted Organostannic Compounds (excluding TBTO (Tributyl Tin Oxide))
	7	Polychlorinated Biphenyls (PCBs), Polychlorinated Terphenyls (PCTs)
	8	Polychlorinated Naphthalenes (Cl \geq 3)
	9	Azo Compounds
	10	Asbestos
	11	Chlorinated Paraffins (C=10 - 13)
	12	Ozone Depleting Substances
	13	Radioactive Substances
	14	Monomethyl Dibromo Diphenyl Methane (DBBT)
	15	Class I Specified Chemical Substances by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (except the Substances Specified by Other Chemical Substance Groups)
	16	Lead and its Compounds
	17	Hexavalent Chromium Compounds
	18	Cobalt Chloride (Indicator Contained in Desiccant)
	19	Perfluorooctane Sulfonate (including its Salts) (PFOS) (See Note)
	20	Dibutyltin (DBT) Compounds (See Note)
	21	Diocetyl tin (DOT) Compounds (See Note)
	22	Dimethyl Fumarate (DMF)
	23	Polyvinyl Chloride (PVC) and its Mixtures (Inclusion Prohibited in Packaging Materials) (See Note)
	24	Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST) (See Note)
	25	Phthalates (Restricted substances under the RoHS Directive which will be prohibited to be contained from July 22, 2019)
Substances to be avoided	26	Poly Vinyl Chloride (PVC) and its Mixtures (Inclusion to be Avoided except in Packaging Materials)
Substances to be controlled	27	Antimony and its Compounds
	28	Arsenic and its Compounds
	29	Beryllium and its Compounds
	30	Bismuth and its Compounds
	31	Nickel and Nickel Compounds
	32	Selenium and its Compounds
	33	Magnesium
	34	Chromium Compounds (except Hexavalent Chromium Compounds)
	35	Cobalt and its Compounds (except Cobalt Chloride Contained in Indicators of Desiccants)
	36	Phthalates (except the restricted substances under the RoHS Directive)
	37	Brominated Flame Retardant (except PBBs, PBDEs and FR-720)
	38	Tetrabromobisphenol A (FR-720)
	39	Halogenated Resin Additives (except Brominated Flame Retardants)
	40	Organic Tin Compounds (except Tri-Substituted Organostannic Compounds (Nos. 5 and 6 above), DBTs and DOTs)
	41	REACH SVHC (except the Substances Specified by Other Chemical Substance Groups)
	42	Bromine and its Compounds (except the Substances Specified by Other Chemical Substance Groups)
	43	Chlorine and its Compounds (except the Substances Specified by Other Chemical Substance Groups)
	44	Bisphenol A
	45	Pentadecafluorooctanoic Acid (including its Salts) (PFOA)
	46	Phosphorus

Refer to the Detailed Description of **Table 2** for each of chemical substance groups.

Note) Exception for the regulation of No. 19 “Perfluorooctane Sulfonate (including its Salts) (PFOS)”:

- Photoresist and anti-reflecting coating for photolithography

Note) The scope of DBT Compounds of No 20, which is postponed for application for 3 years (prohibited from January 2015), and scope of DOT Compounds are as stipulated in the EU-REACH rules (EC) No. 1907/2006 Annex XVII

Note) Exception for the regulation of No.23 “Polyvinyl Chloride (PVC) and its mixtures (Inclusion Prohibited in Packaging Materials)”:

- Products for which no substitutes are available, such as magazine stick (stick-type package)

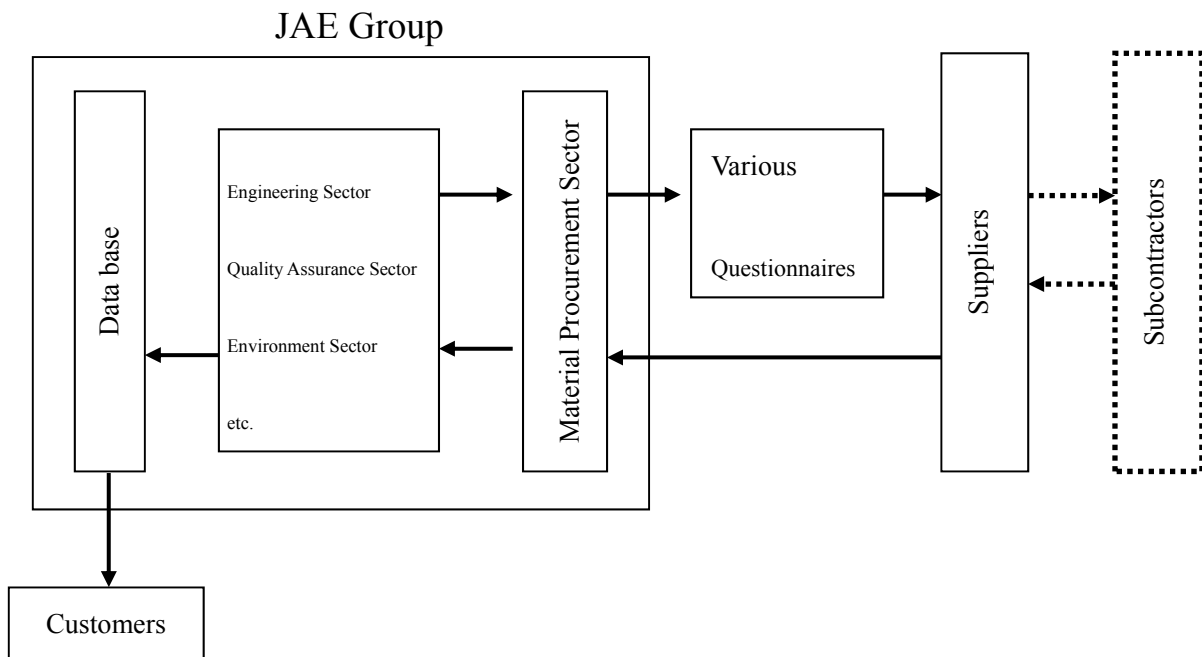
Note) Exception for the regulation of No24 “Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)” (substances restricted under the Prohibition of Certain Toxic Substances Regulations (Canada))

- Additives in rubber except tire

4. Implementation of the green procurement plan

According to Item 3 above, the supplier is requested to submit information on inclusion of substances in their materials and parts. The information offered is evaluated by JAE, maintaining full confidentiality. The specific actions are as follows.

- (1) For substances that impact the environment contained in the parts, etc., suppliers are requested to fill the questionnaire only for the items JAE will need, after the supplier has received the request separately. If some change is made to supplier’s description, the supplier should inform JAE’s contact in the procurement sector regarding details of the change.
- (2) The supplier is requested to submit information whenever a new environmental substance is added according to some change in domestic and/or foreign environmental regulations relating to the products.
- (3) A memorandum for green procurement will be separately prepared and concluded between the supplier concerned and JAE.
- (4) If the supplier procures parts and/or materials from a subcontractor (or sub-subcontractor), the supplier is requested to prepare answers to the green procurement survey, referring to information obtained from the subcontractor.



Detailed Description of Table 2 for chemical substances inclusion of which is prohibited, to be avoided and controlled

Quotation of laws and regulations in this table does not guarantee compliance with the applicable laws and regulations.

Utmost attention has been paid in the description of CAS Nos., but no guarantee is given regarding content.

1. Cadmium and its Compounds

【Prohibited substances】

Substance	CAS No.
Cadmium	7440-43-9
Cadmium chloride	10108-64-2
Cadmium sulfate (II)	10124-36-4
Sulfuric acid, cadmium salt (1:1)	31119-53-6
Cadmium oxide	1306-19-0
Cadmium sulfide	1306-23-6
Cadmium fluoride	7790-79-6
Other cadmium compounds	-----

RoHS Directive item

2. Mercury and its Compounds

【Prohibited substances】

Substance	CAS No.
Mercury	7439-97-6
Mercury(II) oxide	21908-53-2
Mercury dichloride	7487-94-7
Mercury(II) chloride	33631-63-9
Mercury sulphate	7783-35-9
Mercury (II) nitrate	10045-94-0
Mercury(II) sulfide	1344-48-5
Other mercury compounds	-----

RoHS Directive item

3. Polybrominated Biphenyls (PBBs)

【Prohibited substances】

Substance	CAS No.
Polybrominated biphenyls	-----
Other PBBs	-----

RoHS Directive item

4. Polybrominated Diphenyl Ethers (PBDEs)

【Prohibited substances】

Substance	CAS No.
Polybrominated diphenyl ethers	-----
Bis (pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5
Other PBDEs	-----

RoHS Directive item

5. Tributyl Tin Oxide (TBTO)

【Prohibited substances】

Substance	CAS No.
Tributyl tin oxide	56-35-9

6. Tri-Substituted Organostannic Compounds (excluding TBTO (Tributyl Tin Oxide)) 【Prohibited substances】

Substance	CAS No.
Triphenyl tin N,N-dimethyl dithiocarbamate	1803-12-9
Triphenyl tin fluoride	379-52-2
Triphenyl tin chloride	639-58-7
Triphenyl tin chloroacetate	7094-94-2
Triphenyl tin hydroxide	76-87-9
Triphenyl tin acetate	900-95-8
Tributyl tin maleate	14275-57-1 24291-45-0
Tributyl tin chloride	1461-22-9 7342-38-3
Tributyl tin methacrylate	2155-70-6
Tributyl tin laurate	3090-36-6
Bis (Tributyl tin) 2,3- dibromo succinate	31732-71-5 56323-17-2
Bis (Tributyl tin) phthalate	4782-29-0
Tributyl tin acetate	56-36-0
Bis (Tributyl tin) fumarate	6454-35-9 24291-45-0
Tributyl tin sulfamate	6517-25-5
Tributyl tin fluoride	1983-10-4 7304-48-5
Triphenyl tin fatty acid salts (C=9-11)	47672-31-1 18380-71-7 18380-72-8 94850-90-5
Copolymer of alkyl acrylate, methyl methacrylate and Tributyl tin methacrylate (alkyl; C=8)	67772-01-4
Mixture of Tributyl tin cyclopentanecarboxylate and its analogs (Tributyl tin naphthenate)	85409-17-2
Mixture of Tributyl tin 1,2,3,4,4a,4b,5,6,10,10a –decahydro –7 –isopropyl -1,4a –dimethyl –1 –phenanthlenecarboxylate and its analogs (Tributyl tin rosin salt)	26239-64-5
Other triphenyl tin compounds & other tributyl tin compounds	-----

Class II Specified Chemical Substances by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

7. Polychlorinated Biphenyls (PCBs), Polychlorinated Terphenyls (PCTs)

【Prohibited substances】

Substance	CAS No.
PCB	1336-36-3
PCT	61788-33-8
Other PCBs	-----

Class I Specified Chemical Substances by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

8. Polychlorinated Naphthalenes (PCN) (Cl ≥ 3)

【Prohibited substances】

Substance	CAS No.
Polychlorinated naphthalenes (Cl ≥ 3)	70776-03-3
Other polychlorinated naphthalenes (Cl ≥ 3)	-----

Class I Specified Chemical Substances by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

9. Azo Compounds**【Prohibited substances】**

Substance	CAS No.
4-aminoazobenzene	60-09-3
O-anisidine	90-04-0
2-naphthylamine	91-59-8
3,3'-dichlorobenzidine	91-94-1
4-aminodiphenyl	92-67-1
Benzidine	92-87-5
O-toluidine	95-53-4
4-chloro-2-methylaniline	95-69-2
2,4-toluenediamine	95-80-7
O-aminoazotoluene	97-56-3
5-nitro-o-toluidine	99-55-8
3,3'-dichloro-4,4'-diaminodiphenylmethane	101-14-4
4,4'-methylenedianiline	101-77-9
4,4'-diaminodiphenylether	101-80-4
P-chloroaniline	106-47-8
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7
2-methoxy-5-methylaniline	120-71-8
2,4,5-trimethylaniline	137-17-7
4,4'-thiodianiline	139-65-1
4-methoxy-m-phenylenediamine	615-05-4
4,4'-methylenedi-o-toluidine	838-88-0

This table shows specific amines formed from azo compounds.

Object to be prohibited: Substances that may directly and continually come in contact with human's skin, etc. for a long time

10. Asbestos**【Prohibited substances】**

Substance	CAS No.
Tremolite	77536-68-6
Crocidolite	12001-28-4
Amosite	12172-73-5
Actinolite	77536-66-4
Anthophyllite	77536-67-5
Chrysotile	12001-29-5
Other asbestos	-----

11. Chlorinated Paraffins (C=10 - 13)**【Prohibited substances】**

Substance	CAS No.
Short chain chlorinated paraffins (C=10 - 13)	85535-84-8
Other short chain chlorinated paraffins	-----

12. Ozone Depleting Substances**【Prohibited substances】**

Substance	CAS No.
Ozone depleting substances provided for in the Montreal Protocol	-----

13. Radioactive Substances

【Prohibited substances】

Substance	CAS No.
Uranium	7440-61-1
Plutonium	-----
Radon	10043-92-2
Americium	7440-35-9
Thorium	7440-29-1
Cesium	7440-46-2
Strontium	7440-24-6
Other radioactive substances	-----

14. Monomethyl Dibromo Diphenyl Methane (DBBT)

【Prohibited substances】

Substance	CAS No.
Monomethyl dibromo diphenyl methane (DBBT)	99688-47-8

15. Class I Specified Chemical Substances by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (except the Substances Specified by Other Chemical Substance Groups)

【Prohibited substances】

Substance	CAS No.
Mirex	2385-85-5
Chlordane	57-74-9
Hexa chloro benzene	118-74-1
Chloro phenothane (DDT)	50-29-3
Aldrin	309-00-2
Dieldrin	60-57-1
Endrin	72-20-8
N,N'-ditolyl-p-phenylenediamine	27417-40-9
N-tolyl-N'-xylyl-p-phenylenediamine	28726-30-9
N,N'-dixylyl-p-phenylenediamine	70290-05-0
2,4,6- tri -t- butyl phenol	732-26-3
Toxaphene	8001-35-2
2,2,2-trichloro-1,1-bis (4-chlorophenyl) ethanol (common name; kelthane or dicofol)	115-32-2
Hexachloro-1, 3-butadiene	87-68-3
2-(2H-1,2,3-benzotriazol-2-yl)-4,6-di-tert-butylphenol	3846-71-7
Perfluoro-1-octanesulfonyl fluoride (PFOSF)	307-35-7
Pentachlorobenzene	608-93-5
alpha-hexachlorocyclohexane	319-84-6
beta-hexachlorocyclohexane	319-85-7
gamma-hexachlorocyclohexane or Lindane	58-89-9
Chlordecone	143-50-0
Hexabromobiphenyl	36355-01-8
2,2',4,4'-tetrabromodiphenyl ether	5436-43-1
Pentabromodiphenyl ether	32534-81-9
2,2,4,4,6,6-Hexabromodiphenyl ether	35854-94-5
Diphenyl ether, heptabromo derivative	68928-80-3

Endosulfan	115-29-7 959-98-8 33213-65-9
Hexabromocyclododecane (HBCDD)	25637-99-4 4736-49-6 65701-47-5 138257-17-7 138257-18-8 138257-19-9 169102-57-2 678970-15-5 678970-16-6 678970-17-7
1,2,5,6,9,10-Hexabromocyclododecane	3194-55-6
Alpha-hexabromocyclododecane	134237-50-6
Beta-hexabromocyclododecane	134237-51-7
Gamma-hexabromocyclododecane	134237-52-8

Class I Specified Chemical Substances by the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.

Except substances included in other chemical substance groups such as TBTO, PCBs, PCN and PFOS

16. Lead and its Compounds

【Prohibited substances】

Substance	CAS No.
Lead chromate	7758-97-6
Lead	7439-92-1
Lead stearate	1072-35-1
Lead titanate	12060-00-3
Tri basic lead sulfate	12202-17-4
Lead dioxide	1309-60-0
Lead oxide red	1314-41-6
Lead sulfide	1314-87-0
Lead monoxide	1317-36-8
Basic lead carbonate	1319-46-6
Lead carbonate basic	1344-36-1
Lead sulfate	15739-80-7
Dibasic lead stearate	56189-09-4
Lead carbonate	598-63-0
Lead (II) sulfate (1:1)	7446-14-2
Lead (II) phosphate (3:2)	7446-27-7
Lead(II) hydrogenarsenate	7784-40-9
C.I. pigment red 104	12656-85-8
C.I. pigment yellow 34	1344-37-2
Lead dipicrate	6477-64-1
Trilead diarsenate	3687-31-8
Lead diazide, Lead azide	13424-46-9
Lead styphnate	15245-44-0
Lead(II) methanesulfonate	17570-76-2
Lead bis (tetrafluoroborate)	13814-96-5
Lead titanium zirconium oxide	12626-81-2
Silicic acid, lead salt	11120-22-2

Silicic acid (H ₂ SiO ₅), barium salt (1:1), lead-doped [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001-00-6 in Regulation (EC) No 1272/2008]	68784-75-8
Acetic acid, lead salt, basic	51404-69-4
Lead oxide sulfate	12036-76-9
[Phthalato(2-)]dioxotrilead	69011-06-9
Dioxobis(stearato)trilead	12578-12-0
Fatty acids, C16-18, lead salts	91031-62-8
Lead cyanamate	20837-86-9
Lead dinitrate	10099-74-8
Pentalead tetraoxide sulphate	12065-90-6
Pyrochlore, antimony lead yellow	8012-00-8
Sulfurous acid, lead salt, dibasic	62229-08-7
Tetraethyllead	78-00-2
Trilead dioxide phosphonate	12141-20-7
Lead di(acetate)	301-04-2
Other lead compounds	-----

RoHS Directive item

17. Hexavalent Chromium Compounds**【Prohibited substances】**

Substance	CAS No.
Sodium dichromate	10588-01-9
Chromium trioxide	1333-82-0
Calcium chromate	13765-19-0
Lead chromate	7758-97-6
Potassium dichromate	7778-50-9
Potassium chromate (VI)	7789-00-6
Sodium dichromate dehydrate	7789-12-0
C.I. pigment red 104	12656-85-8
C.I. pigment yellow 34	1344-37-2
Sodium chromate	7775-11-3
Ammonium dichromate	7789-09-5
Strontium chromate	7789-06-2
Potassium hydroxyoctaoxidizincatedichromate	11103-86-9
Pentazinc chromate octahydroxide	49663-84-5
Dichromium tris(chromate)	24613-89-6
Other hexavalent chromium compounds	-----

RoHS Directive item

18. Cobalt Chloride (Indicator Contained in Desiccant)**【Prohibited substances】**

Substance	CAS No.
Cobalt chloride or cobalt chloride (II)	7646-79-9
Cobalt chloride (II) · hexahydrate	7791-13-1
Cobalt chloride (III)	10241-04-0
Cobalt chloride	34240-80-7

19. Perfluorooctane Sulfonate (including its Salts) (PFOS)

【Prohibited substances】

Substance	CAS No.
Perfluorooctane sulfonate	2795-39-3

Threshold of PFOS

- materials: less than 0.1wt %
- Fibers or other coated materials: less than 1µg/m²

20. Dibutyltin (DBT) Compounds 【Prohibited substances】

Substance	CAS No..
Dibutyltin oxide	818-08-6
Dibutyltin dichloride	683-18-1
Dibutyltin dilaurate	77-58-7
Dibutyltin bis(benzylmaleate); Benzyl (Z,Z)-8,8-dibutyl-3,6,10-trioxo-1-phenyl-2,7,9-trioxa-8-stannatrideca-4,11-dien-13-oate;	7324-74-5
Dibutyltin maleate	78-04-6
Dibutyltin di (acetate)	1067-33-0
Other DBT compounds	-----

Threshold of DBT

- materials: less than 0.1wt %

Application postponed for 3 years (to be prohibited from January 2015): according to EU-REACH rules (EC) No. 1907/2006 Annex XVII

21. Dioctyltin (DOT) Compounds

【Prohibited substances】

Substance	CAS No..
Dioctyltin oxide	870-08-6
Di-N-octyltin dichloride	3542-36-7
Dioctyltin maleate	16091-18-2
diisooctyl 2,2'-[(dioctylstannylene)bis(thio)] diacetate	26401-97-8
Dioctyltin dilaurate	3648-18-8
Other DOT compounds	-----

Threshold of DOT

- materials: less than 0.1wt %

According to EU-REACH rules (EC) No. 1907/2006 Annex XVII

22. Dimethyl Fumarate (DMF)

【Prohibited substances】

Substance	CAS No..
Dimethyl fumarate (DMF)	624-49-7

23. Polyvinyl Chloride (PVC) and its Compounds (Inclusion Prohibited in Packaging Materials)

【Prohibited substances】

Substance	CAS No..
Polyvinyl chloride (PVC)	9002-86-2

24. Benzenamine, N-phenyl-, Reaction Products with Styrene and 2,4,4-Trimethylpentene (BNST)

【Prohibited substances】

Substance	CAS No..
Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST)	68921-45-9

25. Phthalates (Restricted substances under the RoHS Directive which will be prohibited to be contained from July 22, 2019)

【Prohibited substances】

Substance	CAS No.
Bis (2- ethyl hexyl) phthalate (DEHP)	117-81-7
Dibutyl phthalate (DBP)	84-74-2
Butyl benzyl phthalate (BBP)	85-68-7
Diisobutyl phthalate (DIBP)	84-69-5

26. Polyvinyl Chloride (PVC) and its Compounds (Inclusion to be Avoided except in Packaging Materials)

【Substances to be avoided】

Substance	CAS No.
Polyvinyl chloride (PVC)	9002-86-2

27. Antimony and its Compounds

【Substances to be controlled】

Substance	CAS No.
Antimony	7440-36-0
Antimony trichloride	10025-91-9
Antimony oxide	1309-64-4
Antimony pentoxide	1314-60-9
Sodium antimonate	15432-85-6
Other antimony compounds	-----

28. Arsenic and its Compounds

【Substances to be controlled】

Substance	CAS No.
Arsenic	7440-38-2
Gallium arsenide	1303-00-0
Diarsenic pentoxide	1303-28-2
Arsenic trioxide	1327-53-3
Other arsenic compounds	-----

29. Beryllium and its Compounds

【Substances to be controlled】

Substance	CAS No.
Beryllium	7440-41-7
Beryllium oxide	1304-56-9
Other beryllium compounds	-----

30. Bismuth and its Compounds

【Substances to be controlled】

Substance	CAS No.
Bismuth	7440-69-9
Bismuth trioxide	1304-76-3
Bismuth nitrate	10361-44-1
Other bismuth compounds	-----

31. Nickel and Nickel Compounds

【Substances to be controlled】

Substance	CAS No.
Nickel	7440-02-0
Nickel (II) oxide	1313-99-1
Nickel (II) carbonate	3333-67-3
Nickel (II) sulfate	7786-81-4
Other nickel compounds (except nickel alloy)	-----

32. Selenium and its Compounds

【Substances to be controlled】

Substance	CAS No.
Selenium	7782-49-2
Selenous acid	7783-00-8
Other selenium compounds	-----

33. Magnesium

【Substances to be controlled】

Substance	CAS No.
Magnesium	7439-95-4

34. Chromium Compounds (except Hexavalent Chromium)

【Substances to be controlled】

Substance	CAS No.
Chromium(III)oxide	1308-38-9
Basic chromic sulfate	64093-79-4
Other trivalent chromium compounds	-----

35. Cobalt and its Compounds (except Cobalt Chloride Contained in Indicators of Desiccants)

【Substances to be controlled】

Substance	CAS No.
Cobalt	7440-48-4
Cobalt(II) oxide	1307-96-6
Cobalt oxide(II,III)	1308-06-1
Other cobalt compounds	-----

36. Phthalates (except the restricted substances under the RoHS Directive)

【Substances to be controlled】

Substance	CAS No.
Diisononyl phthalate	28553-12-0
Dihexyl phthalate	84-75-3
1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4
Other phthalates compounds	-----

37. Brominated Flame Retardant (except PBBs, PBDEs and FR-720)

【Substances to be controlled】

Substance	CAS No.
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(14) [Aliphatic/alicyclic brominated compounds]	-----
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(15) [Aliphatic/alicyclic brominated compounds in combination with antimony compounds]	-----
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(16) [Aromatic brominated compounds (excluding brominated diphenyl ether and biphenyls)]	-----

Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(17) [Aromatic brominated compounds (excluding brominated diphenyl ether and biphenyls) in combination with antimony compounds]	-----
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(22) [Aliphatic/alicyclic chlorinated and brominated compounds]	-----
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(42) [Brominated organic phosphorus compounds]	-----
2,4,6- tribromo phenol	118-79-6
2,4,6- tribromo phenyl allyl ether	3278-89-5
Bromo ethylene	593-60-2
Tetra bromo phthalic anhydride	632-79-1
Tetrabromobisphenol A	79-94-7
2,3- dibromo -1- propanol	96-13-9
TBBA bis-(2-hydroxy-ethyl-ether)	4162-45-2
Poly(2,6-dibromo-phenylene oxide)	69882-11-7
Tetra-decabromo-diphenoxy-benzene	58965-66-5
1,2-bis(2,4,6-tribromo-phenoxy)ethane	37853-59-1
TBBA, unspecified	30496-13-0
TBBA-epichlorhydrin oligomer	40039-93-8
TBBA-diglycidyl-ether oligomer	70682-74-5
TBBA carbonate oligomer	28906-13-0
TBBA carbonate oligomer, phenoxy end capped	94334-64-2
TBBA carbonate oligomer, 2,4,6-tribromophenol terminated	71342-77-3
TBBA-bisphenol a-phosgene polymer	32844-27-2
Brominated epoxy resin end-capped with tribromophenol	139638-58-7
Brominated epoxy resin end-capped with tribromophenol	135229-48-0
TBBA-bis-(allyl-ether)	25327-89-3
TBBA-dimethyl-ether	37853-61-5
Tetrabromo-bisphenol S	39635-79-5
TBBS-bis-(2,3-dibromo-propyl-ether)	42757-55-1
2,4-dibromo-phenol	615-58-7
Pentabromo-phenol	608-71-9
Tribromo-phenyl-allyl-ether, unspecified	26762-91-4
Tetrabromo-cyclo-octane	31454-48-5
1,2-dibromo-4-(1,2-dibromo-methyl)-cyclo-hexane	3322-93-8
TBPA Na salt	25357-79-3
Bis(methyl)tetrabromo-phthalate	55481-60-2
Bis(2-ethylhexyl)tetrabromo-phthalate (C = 6-23)	26040-51-7
2-hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP	20566-35-2
TBPA, glycol-and propylene-oxide esters	75790-69-1
N,N'-ethylene-bis-(tetrabromo-phthalimide)	32588-76-4
Ethylene-bis (5,6-dibromo-norbornane-2,3-dicarboximide)	52907-07-0
2,3-dibromo-2-butene-1,4-diol	3234-02-4
Dibromo-neopentyl-glycol	3296-90-0
Tribromo-neopentyl-alcohol	36483-57-5
Poly tribromo-styrene	57137-10-7
Tribromo-styrene	61368-34-1
Dibromo-styrene grafted PP	171091-06-8

Poly-dibromo-styrene	31780-26-4
Bromo-/chloro-paraffins	68955-41-9
Bromo-/chloro-alpha-olefin	82600-56-4
Tris-(2,3-dibromo-propyl)-isocyanurate	52434-90-9
Tris(2,4-dibromo-phenyl)phosphate	49690-63-3
Tris(tribromo-neopentyl)phosphate	19186-97-1
Chlorinated and brominated phosphate ester	125997-20-8
Pentabromo-toluene	87-83-2
Pentabromo-benzyl bromide	38521-51-6
1,3-butadiene homopolymer, brominated	68441-46-3
Pentabromo-benzyl-acrylate, monomer	59447-55-1
Pentabromo-benzyl-acrylate, polymer	59447-57-3
Decabromo-diphenyl-ethane	61262-53-1
Tribromo-bisphenyl-maleinimide	59789-51-4
Brominated trimethylphenyl-lindane	59789-51-4

38. Tetrabromobisphenol A (FR-720)

【Substances to be controlled】

Substance	CAS No.
Tetrabromobisphenol A bis (2,3- dibromo propyl ether)	21850-44-2

The FR-720 designated by CAS No. only is applicable. Other TBBA's should be described as brominated flame retardants.

39. Halogenated Resin Additives (except Brominated Flame Retardants)

【Substances to be controlled】

Substance	CAS No.
Tris (2- chloro ethyl) phosphate	115-96-8
Poly tetra fluoro ethylene	9002-84-0
Other halogenated resin additives	-----

Halogenated resin additive excluding brominated flame retardants

40. Organic Tin Compounds (except Tri-Substituted Organostannic Compounds, DBTs and DOTs)

【Substances to be controlled】

Substance	CAS No.
Other organic tin compounds	-----

Organic tin compounds excluding TBTO, TBTs, TPTs, DBTs and DOTs

41. REACH SVHC (except the Substances Specified by Other Chemical Substance Groups)

【Substances to be controlled】

Substance	CAS No.
Anthracene	120-12-7
Musk xylene	81-15-2
Triethyl arsenate	15606-95-8
Anthracene oil	90640-80-5
Anthracene oil, anthracene paste, distillation lights	91995-17-4
Ammonia liquor, coal gasification	91995-15-2
Anthracene oil, anthracene-low	90640-82-7
Anthracene oil, anthracene paste	90640-81-6
Pitch, coal tar, high-temperature	65996-93-2
2,4-dinitrotoluene	121-14-2
Acrylamide	79-06-1

Trichloroethylene	79-01-6
Boric acid	10043-35-3 11113-50-1
Sodium tetraborate decahydrate	1303-96-4
Sodium tetraborate	1330-43-4
Sodium tetraborate pentahydrate	12179-04-3
Tetraboron disodium heptaoxide hydrate	12267-73-1
Cobalt(II) sulfate	10124-43-3
Cobalt(II) nitrate	10141-05-6
Cobalt(II) carbonate	513-79-1
Cobalt(II) acetate	71-48-7
2- Methoxyethanol	109-86-4
2- Ethoxyethanol	110-80-5
Chromic acid	7738-94-5
Dichromic acid	13530-68-2
Oligomers of chromic acid and dichromic acid	-----
2-Ethoxyethyl acetate	111-15-9
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4
Hydrazine	302-01-2
Hydrazine hydrate	7803-57-8
1-Methyl-2-pyrrolidinone	872-50-4
1,2,3-Trichloropropane	96-18-4
Diisooheptyl phthalate (DIHP)	71888-89-6
Zirconia aluminosilicate,refractory ceramic fibres (according to conditions of SVHC)	-----
Calcium arsenate	7778-44-1
Bis(2-methoxyethyl) ether	111-96-6
Aluminosilicate, refractory ceramic fibres (according to conditions of SVHC)	-----
N,N-dimethylacetamide	127-19-5
Arsenic acid	7778-39-4
1, 2-dichloroethane	107-06-2
4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9
Formaldehyde, oligomeric reaction products with aniline	25214-70-4
Bis(2-methoxyethyl) phthalate	117-82-8
Phenolphthalein	77-09-8
Triethylene glycol dimethyl ether	112-49-2
1,2-Dimethoxyethane	110-71-4
Boron oxide	1303-86-2
Formamide	75-12-7
1,3,5-Triglycidyl isocyanurate	2451-62-9
1,3,5-tris-[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione	59653-74-6
4,4'-Bis(dimethylamino)benzophenone	90-94-8
4,4'-Methylenebis(N,N-dimethylaniline)	101-61-1
Crystal Violet; Dimethyl(4- {Bis[4-(dimethylamino)phenyl]methylidene} cyclohexa-2,5-dien-1-ylidene)ammonium chloride	548-62-9
Dimethyl(4- {(4-anilino-1-naphthyl)[4-(dimethylamino)phenyl]methylidene} cyclohexa-2,5-dien-1-ylidene)ammonium chloride (according to conditions of SVHC)	2580-56-5
(4-Anilino-1-naphthyl) {bis[4-(dimethylamino)phenyl]}methanol (according to conditions of SVHC)	6786-83-0
Bis[4-(dimethylamino)phenyl][4-(methylamino)phenyl]methanol (according to conditions of SVHC)	561-41-1

Pentacosafuorotridecanoic acid	72629-94-8
Tricosafuorododecanoic acid	307-55-1
Henicosafuoroundecanoic acid	2058-94-8
Heptacosafuorotetradecanoic acid	376-06-7
Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3
Cyclohexane-1,2-dicarboxylic anhydride [1] / cis-cyclohexane-1,2-dicarboxylic anhydride [2] / trans-cyclohexane-1,2-dicarboxylic anhydride [3] [The individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and transomers [1] are covered by this entry]	85-42-7 13149-00-3 14166-21-3
Hexahydromethylphthalic anhydride [1] / Hexahydro-4-methylphthalic anhydride [2] / Hexahydro-1-methylphthalic anhydride [3] / Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	25550-51-0 19438-60-9 48122-14-1 57110-29-9
4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well -defined substances which include any of the individual isomers or a combination thereof]	-----
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	-----
Methoxyacetic acid	625-45-6
N,N-dimethylformamide	68-12-2
1-bromopropane (n-propyl bromide)	106-94-5
Methyloxirane (Propylene oxide)	75-56-9
1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0
Diisopentylphthalate (DIPP)	605-50-5
N-pentyl-isopentylphthalate	776297-69-9
1,2-diethoxyethane	629-14-1
Furan	110-00-9
Diethyl sulphate	64-67-5
Dimethyl sulphate	77-78-1
3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7
N-methylacetamide	79-16-3
Dipentyl phthalate (DPP)	131-18-0
4-Nonylphenol, branched and linear, ethoxylated [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, ethoxylated covering UVCB- and well-defined substances, polymers and homologues, which include any of the individual isomers and/or combinations thereof]	-----
Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0
Disodium 4-amino-3-[[4'-[(2,4-diaminophenyl)azo][1,1'-biphenyl]-4-yl]azo] -5-hydroxy-6-(phenylazo)naphthalene-2,7-disulphonate (C.I. Direct Black 38)	1937-37-7
Imidazolidine-2-thione (2-imidazoline-2-thiol)	96-45-7
Trixylyl phosphate	25155-23-1
Sodium peroxometaborate	7632-04-4
Sodium perborate; perboric acid, sodium salt	-----
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1
2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1

Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetra decanoate (reaction mass of DOTE and MOTE)	-----
1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate (EC No. 201-559-5)	68515-51-5 68648-93-1
5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual isomers of [1] and [2] or any combination thereof]	-----
1,3-Propanesultone	1120-71-4
2-(3,5-Di-tert-butyl-2-hydroxyphenyl)-5-chloro-2H-benzotriazole	3864-99-1
2-(2h-benzotriazol-2-yl)-4-(1,1-dimethylethyl)-6-(1-methylpropyl)-phenol	36437-37-3
Nitrobenzene	98-95-3
Perfluorononan-1-oic acid (2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorononanoic acid and its sodium and ammonium salts)	375-95-1 21049-39-8 4149-60-4

Except the substances whose inclusion is prohibited in other substance group.

42. Bromine and its Compounds (except the Substances Specified by Other Chemical Substance Groups)

【Substances to be controlled】

Substance	CAS No.
Bromine and its compounds	-----

Except the substances included in other chemical substance groups such as PBBs, PBDEs, FR-720 and the brominated flame retardant (see No.35)

43. Chlorine and its Compounds (except the Substances Specified by Other Chemical Substance Groups)

【Substances to be controlled】

Substance	CAS No.
Other chlorine and its compounds	-----

Except the substances included in other chemical substance groups such as PCBs, PCNs ($Cl \geq 3$), paraffine chlorides ($C = 10-13$), PVCs

44. Bisphenol A

【Substances to be controlled】

Substance	CAS No.
Bisphenol A	80-05-7

45. Pentadecafluorooctanoic Acid (including its Salts) (PFOA)

【Substances to be controlled】

Substance	CAS No.
Pentadecafluorooctanoic acid	335-67-1
Ammonium pentadecafluorooctanoate	3825-26-1
Other pentadecafluorooctanoic acid and its salts	-----

46. Phosphorus

【Substances to be controlled】

Substance	CAS No.
Phosphorus	7723-14-0