Green Procurement Guide[Ver.32]

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Sanken Electric Co., Ltd.

Green Procurement Guide

1. Purpose:

This guide intends to clarify “substances prohibited from being contained in Sanken products”, “substances contained in Sanken products which must be identified and their content”, “control system of chemical substances contained in products which suppliers/vendors should make” and “how to submit survey report of environment-restricted substances”

2 . Terms and definitions

Table 2-1 Terms and definitions

№	Terms	Definitions in this standard
1	Sanken products	The products sold by Sanken Electric Co., Ltd.
2	Sanken group	Generic name of Sanken Electric Co., Ltd and its group companies (abbreviation: “SG”)
3	Suppliers	The suppliers of parts and materials for Sanken products, the contract manufacturing companies for Sanken products, etc. (except for Sanken group)
4	Customers	The customers for Sanken products (except for Sanken group)
5	Chemical Substances Control Law	The examination and regulation such as the production of Chemical substances (Japan)
6	RoHS Directive	EU directive on the restriction of the use of hazardous substances in electrical and electronic equipments (substantially the global standard)
7	ELV Directive	EU directive on the restriction of the use of hazardous substances in vehicles (substantially the global standard)
8	REACH	EU rule that determined chemical substance management for all materials (substantially the global standard)
9	SVHC	Substances of Very High Concern which are prescribed ECHA
10	Article	Object given specific shape, a design deciding the function during production
11	Packaging Directive	EU directive on the restriction of the use of hazardous substances in packaging (There are substantially equal state regulations in USA.)
12	IEC62474 (International Electro technical Commission)	International guideline on the disclosure of material compositions in electrical and electronic equipments
13	GADSL (Global Automotive Declarable Substance List)	A common list of controlled chemicals, which has been established by the GASG(Global Automotive Stakeholders Group) consisted of automobile manufacturers, automobile component manufacturers, and chemicals manufacturers in Japan, USA, and Europe, The listed chemicals are defined with codes(prohibited)or(declarable).
14	POPs (Stockholm Convention on Persistent Organic Pollutants)	The Stockholm Convention on Persistent Organic Pollutants is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment.

3. Scope

This standard is applied to the products in **Table 3-1.**

Table 3-1　Target products

№	Target products
1	Parts, materials and assembled components used for the main body of Sanken products
2	Parts, materials and assembled components used for the accessories of Sanken products
3	Printed matters such as operating instructions packaged together with Sanken products
4	Chemicals, parts and materials composing manufacturing devices, etc. used in the manufacturing process, that remain in or adhere to the finished Sanken products (including unintended residuals and deposits)
5	Semi-finished products and finished products that are bought by Sanken group to be resold as Sanken products
6	Packaging materials for shipping of Sanken products to customers (i.e. parts and materials used for these packaging materials)

4. Banned substances

Sanken Group specifies the substances in **Table 4-1** and **Table 5-5** as the chemical substances banned from inclusion in target products (hereafter, "**banned substances**"). Banned substances range from the substances banned by a part of applications to the substances through all applications (refer to Chapter 5). As to SVHC, its inclusion information must be disclosed.

In the future, more substances will be registered by council.

Please pay attention to REACH which was established after RoHS Directive enforcement. This REACH doesn't include RoHS Directive.

Table 4-1　List of banned substances

Categories	Banned Substances
Heavy metals	Cadmium (Cd) and its compounds
	Lead (Pb) and its compounds
	Mercury (Hg) and its compounds
	Hexavalent chromium (Cr6+) compounds
Brominated organic compounds	Polybrominated biphenyls (PBBs)
	Polybrominated diphenylethers (PBDEs) (not excluding deca BDE)
Organic tin compounds	Dibutyl tin compounds(DBTs)
	Diocthyl tin compounds(DOTs)
	Trimethyl tin compounds(TMTs)
	Triethyl tin compounds(TETs)
	Tripropyl tin compounds(TPTs)
	Tributyl tin compounds (TBTs)　include Bis(Tributyl tin)oxide(TBTO)
	Triphenyl tin compounds (TPTs)
Chlorinated	Polychlorinated biphenyls (PCBs)

Categories	Banned Substances
organic compounds	Polychlorinated naphthalenes (PCNs) (more than 1 chlorine atoms)
	Polychlorinated terphenyls (PCTs)
	Short-chain chlorinated paraffins (SCCPs) (carbon chain length of 10-13)
	Polyvinyl chloride (PVC) (including its mixtures and its copolymers) voluntary restriction:see Table 5-3 Other Banned Substances
	Declorane Plus (DP)
	PentaPentachlorophenol (PCP)
Halogenated Organic compounds	Hexachlorobenzene
	Mirex
	Hexachlorobuta(-1,3-)diene
	Pentachlorobenzene
	α-,β-,γ-Hexachlorocyclohexane
Organic fluorine compound	Perfluorooctane sulfonates and its salt(PFOS)
	Perfluorooctanoic acid and its salts (PFOA)
	Perfluorohexanesulfonic acid (PFHxS) and its salts and PFHxS-related substances
	Perfluorocarboxylic acids (C9-C14 PFCA), their salts, and C9-C14 PFCA-related substances
Specified phthalate ester	Specific phthalates (the following six substances) (1) Bis (2-ethylhexyl) phthalate [another name:Di (2-ethylhexyl) phthalate (DEHP or DOP)] (2) Dibutyl phthalate (DBP) (3) Benzyl butyl phthalate (BBP) (4) Di-“isononyl” phthalate (DINP) (5) Di-“isodecyl” phthalate (DIDP) (6) Di-n-octyl phthalate (DNOP)
Others	Asbestos
	Specific azo compounds (forming specific amines)
	Ozone depleting substances (target substances of Montreal Protocol)
	Radioactive substances
	Formaldehyde
	Beryllium oxide
	Cobalt chloride
	Specific benzotriazole (CAS №3846-71-7)
	dimethyl fumarate (DMF)(CSAN№624-49-7)
	Aldrin
	Dieldrin
	Endrin
	DDT(Chlorophenothane)

Categories	Banned Substances
	Chlordanes
	N,N'-ditolyl-p-,N-tolyl-N'-xylyl-p-,N,N'-dixylyi-p-phenylenediamine
	2,4,6-tri-tert-butylphenol
	Toxaphene
	Kelthane
	2-(2H-benzotriazol-2-yl)-4,6-di-tert-butylphenol
	Chlordecone
	Fluorinated greenhouse gases(HFC,PFC,SF6)
	Tris(2,3-dibromopropan-1-yl) phosphate(TRIS)
	Tris(1-aziridinyl) phosphine oxide(TEPA)
	Tris(2-chloroethyl)phosphate(TCEP)
	Hexabromocyclododecane(HBCDD)
	Decabromodiphenyl ether (DecaBDE)
	Diarsenic trioxide
	Diarsenic pentaoxide
	Simazine
	Ethyl p-nitrophenyl
	Endosulfan
	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene(BNST)

Categories	Banned Substances
	Polycyclic Aromatic Hydrocarbon(PAH) (1) Naphthalene (2) Acenaphthylene (3) Acenaphthene (4) Fluorene (5) Phenanthrene (6) Anthracene (7) Fluoranthene (8) Pyrene (9) Benzo(a)anthracene (10) Chrysene (11) Indeno(1,2,3-cd)pyrene (12) Benzo(b)fluoranthene (13) Benzo(k)fluoranthene (14) Benzo(a)pyrene (15) Dibenzo(a,h,)anthracene (16) Benzo(g,h,i,)pyrylene (17) Benzo(j)fluoranthene (18) Benzo(e)pyrene
	Naphthalene
	Refractories, fibers, aluminosilicate
	UV-328
	GADSL 'P': Substance of Prohibited category
	Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)
	Substances subject to the POPs Convention (Some substances are listed individually.)

5. Banned usage and allowable concentration

Sanken Group specifies banned usage and allowable concentration with **Table 5-1~5-4** for each of banned substances in Table 4-1. And Table 5-5 specifies SVHC in REACH. Refer to the supplementary explanations in **Table 5-6.**

Table 5-1 RoHS substances

Banned substances : Cadmium (Cd) and its compounds / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
Plastics, paints, and inks Note: Plastics mainly content synthesis polumer and rubber. Paints content fluorescent materials for fluorescent lamps. (the same as follows)	(Cd) Prohibition of intentional use and less than 5 ppm	(Cd) Less than 100 ppm
Solders	(Cd) Prohibition of intentional use and less than 20 ppm	(Cd) Less than 100 ppm
All applications other than the above. (Excluding applications: Testing, research, measurement.)	(Cd) Prohibition of intentional use and less than 50 ppm	(Cd) Less than 100 ppm

[Exemption (Cd)] ■Electrical contacts：until the deadline will be described in the Next EU Official Journal ■filter glasses and glasses used for reflectance standards：until the deadline will be described in the Next EU Official Journal ■printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses：until 2021/7/21 ■thick film pastes used on aluminum bonded beryllium oxide：until 2021/7/21 ■Cadmium selenide in downshifting cadmium-based semiconductor nanocrystal quantum dots for use in display lighting applications：until the deadline will be described in the Next EU Official Journal		

Banned substances：Lead (Pb)and its compounds / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
Plastics, paints, and inks * US/California Proposition 65 Case	(Pb) Prohibition of intentional use and less than 50 ppm	(Pb) Less than 300 ppm*
Electroless nickel plated (Lead and its compounds are allowed to be added to the plating liquid for stabilization. Strictly control the content density of lead.)	(Pb) Less than 750 ppm	(Pb) Less than 1000 ppm
All applications other than the above (excluding lead contained solders intentionally purchased by Sanken Group. / (Excluding applications: Testing, research, measurement.)	(Pb) Prohibition of intentional use and less than 500 ppm	(Pb) Less than 1000 ppm

[Exemption (Pb)] ■White glasses used for optical applications : until the deadline will be described in the Next EU Official Journal ■Filter glasses and glasses used for reflectance standards : until the deadline will be described in the Next EU Official Journal ■Printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses : until 2021/7/21 ■Solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors : until the deadline will be described in the Next EU Official Journal ■The plating layer of high voltage diodes on the basic of a zinc borate glass body : until 2021/7/21	
6(a)-1 Lead as an alloying element in steel for machining purposes containing up to 0,35 % lead by weight and in batch hot dip galvanised steel components containing up to 0,2 % lead by weight	until the deadline will be described in the Next EU Official Journal for categories 1- 10 until 2021/7/21 for categories 11
6(b) Lead as an alloying element in aluminium containing up to 0,4 % lead by weight	Expires on: until the deadline will be described in the Next EU Official Journal for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, 21 July 2023 for category 8 in vitro diagnostic medical devices, 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
6(b)- I Lead as an alloying element in aluminium containing up to 0,4 % lead by weight, provided it stems from lead-bearing aluminium scrap recycling	until the deadline will be described in the Next EU Official Journal for categories 1-7 and 10
6(b)- II Lead as an alloying element in aluminium for machining purposes with a lead content up to 0,4 % by weight	until the deadline will be described in the Next EU Official Journal for categories 1-7 and 10.'

6(c) Copper alloy containing up to 4 % lead by weight	Expires on: until the deadline will be described in the Next EU Official Journal for categories 1-7 and 10, until the deadline will be described in the Next EU Official Journal for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, 21 July 2023 for category 8 in vitro diagnostic medical devices, 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.'
7(a) Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead)	Applies to categories 1-7 and 10 (except applications covered by point 24 of this Annex) on until the deadline will be described in the Next EU Official Journal. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments on until the deadline will be described in the Next EU Official Journal. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.'
7(c)- I Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound	Applies to categories 1-7 and 10 (except applications covered under point 34) on until the deadline will be described in the Next EU Official Journal. For categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments on until the deadline will be described in the Next EU Official Journal. For category 8 in vitro diagnostic medical devices expires on 21 July 2023. For category 9 industrial monitoring and control instruments, and for category 11 expires on 21 July 2024.'

7(c)-II Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher	Expires on: until the deadline will be described in the Next EU Official Journal for categories 1-7 and 10; until the deadline will be described in the Next EU Official Journal for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; 21 July 2023 for category 8 in vitro diagnostic medical devices; 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.
15 Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages'	Expires on: until the deadline will be described in the Next EU Official Journal for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments; 21 July 2023 for category 8 in vitro diagnostic medical devices; 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11. Note: Until February 29, 2020, the current "exclusion" applies to categories 1-7 and 10, too.
15(a) Lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies: a semiconductor technology node of 90 nm or larger; a single die of 300 mm2 or larger in any semiconductor technology node; stacked die packages with die of 300 mm2 or larger, or silicon interposers of 300 mm2 or larger.	Note: The new 'Exclusions and Exclusion Range' legally applies from products launched in the EU on 29 February 2020. Applies to categories 1-7 and 10 on until the deadline will be described in the Next EU Official Journal.

34 Lead in cermet-based trimmer potentiometer elements	Applies to all categories; expires on: until the deadline will be described in the Next EU Official Journal for categories 1-7 and 10, until the deadline will be described in the Next EU Official Journal for categories 8 and 9 other than in vitro diagnostic medical devices and industrial monitoring and control instruments, 21 July 2023 for category 8 in vitro diagnostic medical devices, 21 July 2024 for category 9 industrial monitoring and control instruments, and for category 11.

Banned substances : Mercury (Hg)and its compounds / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
All applications. (Excluding applications: Testing, research, measurement.)	(Hg) Prohibition of intentional use and less than 100 ppm	(Hg) Less than 1000 ppm

Banned substances : Hexavalent chromium(Cr6+)compounds / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
All applications. (Excluding applications: Testing, research, measurement.)	(Cr6+)Prohibition of intentional use and less than 100 ppm	(Cr6+) Less than 1000 ppm

Banned substances : 4 heavy metals in packaging materials (Cd and its compounds, Pb and its compounds, Hg and its compounds, and Cr6+ compounds) / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
Packaging materials for shipping of Sanken products to customers e.g. handles, wooden frames, foils, trays, reels, magazine including stoppers, sticks, bags, cushions, staples, sheets, wraps, corrugated cardboards, paintings, inks, tapes, binding bands, labels, bulk cases. ■Except for boxes for transporting products which do not contaminate products with prohibited substances when it comes into contact. (Note) This regulation is based on Packaging Directive.	Prohibition of intentional use for Cd, Pb, Hg, and Cr6+	Less than 100 ppm for total of Cd, Pb, Hg, and Cr6+
	and less than 50 ppm for total of Cd, Pb, Hg, and Cr6+	
	and less than 5 ppm of Cd for plastics, paints, and inks	

Banned substances : Polybrominated biphenyls (PBBs), Polybrominated diphenylethers (PBDEs)(not excluding deca BDE) / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
All applications. (Excluding applications: Testing, research, measurement.) (Note) It is prohibited to contain any of them in the packing and packaging materials in consideration of cutomers'request.	(PBBs) Prohibition of intentional use and less than 100 ppm	(PBBs) Less than 1000 ppm
	(PBDEs) Prohibition of intentional	(PBDEs) Less than 1000 ppm

	use and less than 100 ppm	

Banned substances : Bis (2-ethylhexyl) phthalate[another name:Di (2-ethylhexyl) phthalate (DEHP or DOP)], Benzyl butyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate(DIBP) / Applications	Allowable concentrations per each homogeneous material	
	Controlled values	Regulated values
All applications. (Excluding applications: Testing, research, measurement.)	Prohibition of intentional use and less than 500 ppm	Less than 1000 ppm

Table 5-2 RoHS substances (Summary version of Table 5-1)

RoHS substances / Applications			Cd		Pb		Hg/Cr^{6+} /PBBs/PBDEs		DEHP or DOP / BBP / DBP / DIBP	
			Controlled values	Regulated values	Controlled values	Regulated values	Controlled values (each substance)	Regulated values (each substance)	Controlled values (each substance)	Regulated values (each substance)
Sanken products	Plastics, paints, and inks		5	100	50	300*	100	1000	500	1000
	Solders	Lead free solders	20	100	500	1000	100	1000	500	1000
		Lead contained solders								
	Electroless nickel plating		50	100	750	1000	100	1000	500	1000
	Others		50	100	500	1000	100	1000	500	1000
Packaging materials for shipping of Sanken products to customers			Controlled values Cd+Pb+Hg+Cr6+: 50 Cd for plastics, paints, and inks: 5 PBBs, PBDEs: 100 (each substance)		Regulated values Cd+Pb+Hg+Cr6+: 100 PBBs, PBDEs: 1000 (each substance)					

- Unit of controlled value and regulated value: “Less than __ ppm” per each homogeneous material
- Intentional use of RoHS substances is prohibited regardless of the content density, excluding Pb in electroless nickel plated.
- RoHS/ELV exemptions are allowed. However, RoHS exemption for deca BDE is not allowed.

* US/California Proposition 65 Case

Table 5-3 Other Banned Substances

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
Dibutyl tin compounds (DBTs)	-	-	All applications	Less than 1000ppm
Dioctyl tin compounds (DOTs)	-	-	If the following cases apply to, the use of chemical substances is prohibited ■Being used as textile intended to contact with the skin and two-component room temperature vulcanization molding kits. ■Products for childcare.	Less than 1000ppm
Trimethyl tin compounds(TMTs)	-	-	All applications	Prohibition of intentional use And less than 1000 ppm (each substance)
Triethyl tin compounds(TETs)	-	-		
Tripropyl tin compounds(TPTs)	-	-		
Tributyl tin compounds (TBTs) [Including Bis(tributyltin) oxide (TBTO)]	-	-		
Triphenyl tin compounds (TPTs)	-	-		
Polychlorinated biphenyls (PCBs)	-	-	All applications	Prohibition of intentional use
Polychlorinated naphthalenes (PCNs) (more than 1 chlorine atoms)	-	-	All applications	
Polychlorinated terphenyls (PCTs)	-	-	All applications	

Banned substances	CAS №	EC №	Applications		Allowable concentrations per each homogeneous material
Short-chain chlorinated paraffins (SCCPs) (carbon chain length of 10-13)	85535-84-8	287-476-5	All applications		
Polyvinyl chloride (PVC) (including its mixtures and its copolymers)	9002-86-2	-	● Binding bands (for bundling connecting cords, etc. ; the same as "binding ties") ● Heat shrink tubes ● Insulating plates	● Decorative panels ● Labels ● Sheets ● Laminates	
			Flexible flat cables (for specific customers)		
			Other applications that Sanken group individually specify to suppliers		
			Exemptions In cases where: quality such as safety cannot be maintained; procurement is difficult; materials are specified by law or regulation; materials are specified by the customer, etc.		
Declorane Plus (DP)	13560-89-9 135821-03-3 135821-74-8	-	All applications Scheduled to be banned		
Pentachlorophenol (PCP)	87-86-5	-	All applications POPs Convention Annex A		
Hexachlorobenzene	118-74-1	204-273-9	All applications		
Mirex	2385-85-5	219-196-6			
Hexachlorobuta-1,3-diene	87-68-3	201-765-5			

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
Pentachlorobenzene	608-93-5	210-172-5		
α-,β-,γ-Hexachlorocyclohexane	α-319-84-6 β-319-85-7 γ-58-89-9	α-206-270-8 β-206-271-3 γ-200-401-2		
Asbestos	-	-	All applications	
Specific azo compounds (forming specific amines	-	-	Leather, textile, and other products that may come into direct and prolonged contact with human skin (e.g. ear pads of headphones)	
Ozone depleting substances (target substances of Montreal Protocol)	-	-	All applications (Note) Use of ozone depleting substances in the manufacturing process is prohibited in addition to contain in products.	
Radioactive substances	-	-	All applications	
Formaldehyde	50-00-0	200-001-8	Wooden products (e.g. speakers, racks)	
Beryllium oxide	1304-56-9	215-133-1	All applications	
Cobalt chloride	7646-79-9	231-589-4	Indicator of desiccants (e.g. silica gel) that are shipped with Sanken products (for specific customers) (Note) Used as a material that discolored by moisture absorption	
PFOS (Perfluorooctanesulfonic acid and its salt)	-	-	All applications	

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
PFOA (Perfluorooctanoic acid and its salt)	-	-	Impurities must not exceed the following level of content by percentage and amount. ・Content by percentage in Preparation: 0.005% by weight ・Content by percentage in Materials: 0.1% by weight ・Amount in coated materials: 1μg/m2 [Exemption (PFOS,PFOA)] ■Photo resist or anti reflective coatings for photolithographs process ■Photo coatings used to films, documents, or printing plates.	
Perfluorohexanesulfonic acid (PFHxS) and its salts and PFHxS-related substances	-	-	All applications	
Perfluorocarboxylic acids (C9-C14 PFCA), their salts, and C9-C14 PFCA-related substances	-	-	All applications Restrictions on use and marketing ・Total of C9-C14 PFCAs and their salts <25 ppb ・Total of C9-C14 PFCAs-related substances <260 ppb	
Specific phthalates(the following three substances) (4)Di-“isononyl” phthalate (DINP) (5)Di-“isodecyl” phthalate	28553-12-0 68515-48-0 26761-40-0	249-079-5 247-977-1	“Toys which can be put into the mouth and plastic products for childcare” for specific customers (Note) This regulation is based on Directive 2005/84/EC. Mainly used as plasticizers for PVC (Use for products to China has been prohibited as of January 1, 2014)	Prohibition of intentional use and less than 1000 ppm for total of these three substances

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
(DIDP) (6) Di-n-octyl phthalate (DNOP)	68515-49-1 117-84-0	 204-214-7		
dimethyl fumarate(DMF)	624-49-7	210-849-0	All applications (Note) This regulation is based on Directive 2009/251/EC. Mainly used as prevention of spread of mold	Prohibition of intentional use
Aldrin	309-00-2	206-215-8	All applications	
Dieldrin	60-57-1	200-484-5		
Endrin	72-20-8	200-775-7		
DDT(Chlorophenothane)	50-29-3	200-024-3		
Chlordanes	57-74-9	200-349-0		
N,N'-ditolyl-p-,N-tolyl-N'-xylyl-p-,N,N'-dixylyi-p-phenylenediamine	-	-		
2,4,6-tri-tert-butylphenol	732-26-3	211-989-5		
Toxaphene	8001-35-2	232-283-3		
Kelthane	115-32-2	115-32-2		
2-(2H-benzotriazol-2-yl)-4,6-di-tert-butylphenol	3846-71-7	223-346-6		
Chlordecone	143-50-0	-		
Fluorinated greenhouse gases(HFC,PFC,SF6)	-	-		
Tris(2,3-dibromopropyl) phosphate(TRIS)	126-72-7	204-799-9	Textile which intends to come into contact with the skin directly	
Tris (1-aziridinyl) phosphine oxide(TCEP)	545-55-1	208-892-5		

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
Tris(2-chloroethyl)phosphate (TCEP)	115-96-8	204-118-5	Flame retardants used in plastics, resins, textile, and fabric. (Delivery has been prohibited as of January 1, 2014) (Vermont, USA)	less than 1000 ppm
Tris(2-chloroisopropyl) phosphate (TCPP)	13674-84-5	237-158-7		
Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)	13674-87-8	237-159-2		
Hexabromocyclododecane(HBCDD)	3194-55-6 25637-99-4 (Isomeric mixture)	221-695-9 247-148-4	All applications POPs Convention Annex A	Prohibition of intentional use
Decabromodiphenyl ether (DecaBDE)	1163-19-5	214-604-9		
Diarsenic trioxide	1327-53-3	215-481-4	Antifoam agents and fining agents for LCD panels (including cover glasses, touch screens, and backlights) (Delivery has been prohibited as of January1, 2014)	
Diarsenic pentaoxide	1303-28-2	215-116-9		
Simazine	122-34-9	204-535-2	Used as herbicide (It is specified as water pollution agricultural chemicals by Agricultural Chemicals Regulation Law.)	
Ethyl p-nitrophenyl	2104-64-5	218-276-8	Used as organic phosphorus pesticide.	
Endosulfan	115-29-7	204-079-4	Pesticide	
Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene(BNST)	68921-45-9		Additives in the lubricating oil (anti-oxidant)	
Polycyclic Aromatic Hydrocarbon(PAH)			rubber or plastic components that come into direct as well as prolonged	Benzo[a]pyrene:

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
(1) Naphthalene	91-20-3	-	or shortterm repetitive contact with the human skin or the oral cavity : Customer special request	20mg/kg Total of the 18 types of PAH(EPA): 200 mg/kg
(2) Acenaphthylene	208-96-8	-		
(3) Acenaphthene	83-32-9	-		
(4) Fluorene	86-73-7	-		
(5) Phenanthrene	85-01-8	-		
(6) Anthracene	120-12-7	-		
(7) Fluoranthene	206-44-0	-		
(8) Pyrene	129-00-0	-		
(9) Benzo(a)anthracene	56-55-3	-		
(10) Chrysene	218-01-9	-		
(11) Indeno(1,2,3-cd)pyrene	193-39-5	-		
(12) Benzo(b)fluoranthene	205-99-2	-		
(13) Benzo(k)fluoranthene	207-08-9	-		
(14) Benzo(a)pyrene	50-32-8	-		
(15) Dibenzo(a,h,)anthracene	53-70-3	-		
(16) Benzo(g,h,i,)pyrylene	191-24-2	-		
(17) Benzo(j)fluoranthene	205-82-3	-		
(18) Benzo(e)pyrene	192-97-2	-		
Chemicals that are listed in the GADSL list	-	-	All applications	Prohibition of intentional use
Naphthalene	91-20-3	-	All applications	Prohibition of intentional use
Refractories, fibers, aluminosilicate	142844-00-6	-	All applications	Prohibition of intentional use
Phenol, isopropyliert, Phosphat (3:1)	68937-41-7	273-066-3	All applications	Prohibition of intentional use

Banned substances	CAS №	EC №	Applications	Allowable concentrations per each homogeneous material
Pentachlorothiophenol	133-49-3	-	All applications	Prohibition of intentional use
UV-328	25973-55-1	247-384-8	All applications Scheduled to be banned	Prohibition of intentional use
Substances subject to the POPs Convention	-	-	All applications	Prohibition of intentional use

Points to remember

* The use of chemical substances indispensable for manufacturing is not limited.

However, it does not remain in the final product.

In addition, there is a mechanism that does not affect air, soil and human body in the process.

Table 5-4 Banned Substances for batteries

Banned substances	Applications	Allowable concentrations per total weight of each battery (Regulated values)
Cadmium (Cd) and its compounds	Ni-Cd batteries	(Cd) Prohibition regardless of the density
Lead (Pb) and its compounds	Lead-acid batteries (excluding intentional purchase by Sanken group)	(Pb) Prohibition regardless of the density
	Batteries other than lead-acid batteries	(Pb) Less than 0.4_wt%
Mercury (Hg) and its compounds	Button cell batteries	(Hg) Less than 2 wt%
	Batteries other than button cell batteries	(Hg) Less than 0.0005wt%
	Carbon zinc batteries and alkaline batteries designed for use in China	(Hg) Less than 0.0001wt%

Table 5-5 REACH SVHC **2024/6/27 update**

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
1	Anthracene	120-12-7	204-371-1	PBT	A preservative and an insecticide of the wood, paint, carbon black
2	4,4'- Diaminodiphenylmethane	101-77-9	202-974-4	CMR	The raw materials of the polyurethane intermediate

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
3	Dibutyl phthalate(DBP)	84-74-2	201-557-4	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health)	A resinous plasticizer(Vinyl Chloride, vinyl acetate, nitrocellulose, methacrylic acid etc)
4	Cobalt dichloride	7646-79-9	231-589-4	CMR	Raw materials for paint, plating, ink desiccating agents
5	Diarsenic pentaoxide	1303-28-2	215-116-9	CMR	Arsenic compound drug, prevention of decay / ant on wood
6	Diarsenic trioxide	1327-53-3	215-481-4	CMR	Raw materials of the metal arsenic, clearing agent at the time of the flint glass and liquid crystal glass production
7	Sodium dichromate, dehydrate	7789-12-0	234-190-3	CMR	An inorganic chrome pigment, metal surface processing (Prevention of corrosion)
8	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	201-329-4	vPvB	Compounding spice(Perfume, soap, etc)
9	Bis (2-ethyl(hexyl)phthalate) (DEHP)	117-81-7	204-211-0	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - human health)	Resin(Chloroethylene, nitrocellulose, methacrylic acid etc) , A plasticizer(Chloride rubber, etc), Paint, pigment, adhesive, the additive of the lubricating oil
10	Hexabromocyclododecane (HBCDD)	25637-99-4	247-148-4	PBT	Incombustibility agent
11	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	287-476-5	PBT	Incombustibility agent, a plasticizer

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
12	Bis(tributyltin)oxide	56-35-9	200-268-0	PBT	Sterilization , mold prevention,bottom of a ship paint additive
13	Lead hydrogen arsenate	7784-40-9	232-064-2	CMR	A pesticide（ lapse in Japan）
14	Triethyl arsenate	15606-95-8	427-700-2	CMR	
15	Benzyl butyl phthalate (BBP)	85-68-7	201-622-7	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health)	a plasticizer of the nitrocellulose resin and vinyl chloride resin
16	Anthracene oil	90640-80-5	292-602-7	PBT	Raw material of Pure Anthracene, Preservative,waterproof material
17	Antracene oil,paste,distin,Lights	91995-17-4	295-278-5	PBT	Raw material of Pure Anthracene, Preservative,waterproof material
18	Antracene oil,paste,fraction	91995-15-2	295-275-9	PBT	Raw material of Pure Anthracene, Preservative,waterproof material
19	Antracene oil,-low	90640-82-7	292-604-8	PBT	Raw material of Pure Anthracene, Preservative,waterproof material
20	Antracene oil,paste	90640-81-6	292-603-2	PBT	Raw material of Pure Anthracene, Preservative,waterproof material
21	Coal tar pitch,high temperature	65996-93-2	266-028-2	CMR	Carbon electrodes, graphite electrodes, paint

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
22	Aluminosili-cate,RefractoryCeramicFibres			CMR	Refractory ceramic fiber, fire-proof agent
23	ZirconiaAluminosili-cate,RefractoryCeramicFibres			CMR	Refractory ceramic fiber, fire-proof agent
24	2,4-Dinitrotoluene	121-14-2	204-450-0	CMR	Synthetic raw material of Toluene-diisocyanate
25	Diisobutyl phthalate(DIBP)	84-69-5	201-553-2	Toxic for reproduc-tion (Article 57c) Endocrine disrupt-ing properties (Arti-cle 57(f) - human health)	Plasticizer
26	Lead chromate	7758-97-6		CMR	Pigment, Bleach
27	Lead chromate molyb-date surfate red(CI Pib-ment Red 104)	12656-85-8	235-759-9	CMR	Pigment
28	Lead sulfochromate yel-low (C.I.Pigment Yellow 34)	1344-37-2	215-693-7	CMR	Pigment
29	Tris(2-chloroethyl)phosphate	115-96-8	204-118-5	CMR	Flame retardant
30	Acrylamide	79-06-1	201-173-7	CMR	Paper processing, waste water treatment, adhesives, laundry starches
31	Trichloroethylene	79-01-6	201-167-4	CMR	Cleaning and degreasing of metal parts, solvent in adhesives
32	Boric acid	10043-35-3/11113-50-1	233-139-2 / 234-343-4	CMR	Glass,ceramics,flame-retardants ,food-additives, fertilizers, rub-bers
33	Disodium tetraborate, anhydrous	1330-43-4 12179-04-3 1303-96-4	215-540-4	CMR	Glass,glass-fibers,ceramics,fertilizers,cleaners
34	Tetraboron disodium heptaoxide, hydrate	12267-73-1	235-541-3	CMR	Glass,glass-fibers,ceramics,fertilizers,cleaners

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
35	Sodium chromate	7775-11-3	231-889-5	CMR	It is mainly used as an intermediate in the manufacture of other chromium compounds as well as a laboratory analytical agent
36	Potassium chromate	7789-00-6	232-140-5	CMR	Coating of metals,reagents,textiles
37	Ammonium dichromate	7789-09-5	232-143-1	CMR	Tanned leather, in the manufacture of photosensitive screens, metal treatment
38	Potassium dichromate	7778-50-9	231-906-6	CMR	Chrome steel plate, treatment and coating of metals, tanned leather
39	Cobalt(Ⅱ)sulphate	10124-43-3	233-334-2	CMR	Manufacture of catalysis and driers, surface treatments , pigment、red
40	Cobalt(Ⅱ)dunitrate	10141-05-6	233-402-1	CMR	Manufacture of catalysis and surface treatment ,batteries
41	Cobalt(Ⅱ)carbonate	513-79-1	208-169-4	CMR	Manufacture of catalysis and feed Additive, pigment, pale-rouge
42	Cobalt(Ⅱ)diacetate	71-48-7	200-755-8	CMR	Manufacture of catalysis and surface treatment, alloys, adhesives, feed additive, pink-rouge
43	2-Methoxyethanl	109-86-4	203-713-7	CMR	Solvent for ink, chemical intermediate and additive for fuels, paints
44	2-Ethoxyethanole	110-80-5	203-804-1	CMR	Solvent for paint and ink, chemical intermediate ,

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
45	Chomium trioxide	1333-82-0	215-607-8	CMR	Pigment, manufacture of catalysis, surface treatment
46	Acids generated from chromium trioxide and their oligomers	7738-94-5	231-801-5	CMR	Pigment, manufacture of catalysis, surface treatment
		13530-68-2	236-881-5		
47	2-Ethoxyethyl acetate	111-15-9	203-839-2	Toxic for reproduction (article 57c)	Solvent for paint and ink
48	1,2-Benzenedicarboxylic acid, di-C7-11-branched(DHNUP)	68515-42-4	271-084-6	Toxic for reproduction (article 57c)	Plasticizer,Dye, Pigment,Paint,Ink, Adhesive
49	Hydrazine	7803-57-8	206-114-9	Carcinogenic (article 57 a)	Foaming agent for rubber and plastic
		302-01-2			
50	1-Methyl-2-pyrrolidone	872-50-4	212-828-1	Toxic for reproduction (article 57c)	Plasticizer, Stabilizers, Special ink
51	1,2,3-Trichloropropane	96-18-4	202-486-1	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	Solvent, Cross-linking agent
52	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich(DIHP)	71888-89-6	276-158-1	Toxic for reproduction (article 57c)	Plasticizer,Dye, Pigment,Paint,Ink, Adhesive
53	Calcium arsenate	7778-44-1	231-904-5	Carcinogenic (article 57 a)	insect killer, insect repellent
54	Bis(2-methoxyethyl) ether	111-96-6	203-924-4	Carcinogenic (article 57 a)	Solvent, Solvent of battery electrolyte,Adhesive
55	Lead dipicrate	6477-64-1	229-335-2	Toxic for reproduction (article 57 c)	Detonator
56	N,N-dimethylacetamide (DMAC)	127-19-5	204-826-4	Toxic for reproduction (article 57 c)	Solvent for textile manufacturing,cleaning agent, remover

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
57	Arsenic acid	7778-39-4	231-901-9	Carcinogenic (article 57 a)	Bubble removal in the manufacture of multilayer printed wiring board, Reagent
58	2-Methoxyaniline (o-Anisidine)	90-04-0	201-963-1	Carcinogenic (article 57 a)	Dyestuff
59	Trilead diarsenate	3687-31-8	222-979-5	Carcinogenic and toxic for reproduction (articles 57 a and 57 c)	insect killer,insect repellent
60	1,2-dichloroethane	107-06-2	203-458-1	Carcinogenic (article 57 a)	Solvent, intermediate
61	4-(1,1,3,3-Tetramethylbutyl)phenol; 4-tert-octylphenol	140-66-9	205-426-2	Equivalent level of concern having probable serious effects to the environment (article 57 f)	Raw material of oil solvent phenol resin, Compounding ingredient for rubber
62	Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	500-036-1	Carcinogenic (article 57 a)	Intermediate, Curing agent, Adhesive, ion exchange resin
63	Bis(2-methoxyethyl) phthalate	117-82-8	204-212-6	Toxic for reproduction (article 57 c)	Plasticizer, Ink, Adhesive, Pigment, paints, Dyestuff
64	Lead diazide, Lead azide	13424-46-9	236-542-1	Toxic for reproduction (article 57 c)	Detonator
65	Lead styphnate	15245-44-0	239-290-0	Toxic for reproduction (article 57 c)	Gunpowder, detonating powder
66	2,2'-dichloro-4,4'-methylenedianiline (MOCA)	101-14-4	202-918-9	Carcinogenic (article 57 a)	Hardening accelerator, Curing agent of polyurethane, Extend material of high melting temperature type hard segment

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
67	Phenolphthalein	77-09-8	201-004-7	Carcinogenic (article 57 a)	Indicator, pH indicator, and ink that Disappears
68	Potassiumhydroxyoc-taoxodiz-incatedi-chromate	11103-86-9	234-329-8	Carcinogenic (article 57 a)	Paint
69	Pentazinc chromate oc-tahydroxide	49663-84-5	256-418-0	Carcinogenic (article 57 a)	Colorant
70	Dichromium tris(chromate)	24613-89-6	246-356-2	Carcinogenic (article 57 a)	surface treatment
71	Strontium chromate	7789-06-2	232-142-6	Carcinogenic (article 57 a)	Yellow pigments
72	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	548-62-9	208-953-6	Carcinogenic (Article 57a)	Colored paper,Ballpoint pen ink and printer ink,Coloring drugs, dried plant,Marker to increase the visibility of the liquid,In medical research, microorganisms and coloring Stain bacteria Dye
73	1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β-TGIC)	59653-74-6	423-400-0	Mutagenic (Article 57b)	hardener of Resin and coating
74	1,2-bis(2-methoxyethoxy) ethane (TEGDME; triglyme)	112-49-2	203-977-3	Toxic for reproduction (Article 57 c)	Solvent,Processing aid,Refrigerant,Absorbent,Acid gas,cleaning agent,Brake fluid
75	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	561-41-1	209-218-2	Carcinogenic (Article 57a)	Writing ink,Other ink,Dye

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
76	Lead(II) bis(methanesulfonate)	17570-76-2	401-750-5	Toxic for reproduction (Article 57 c)	Plating of electronic components (electrolytic, electroless)
77	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	203-794-9	Toxic for reproduction (Article 57 c)	Solvent,Processing aid,Refrigerant,Absorbent,Acid gas cleaning agent,Lithium battery electrolyte solvent
78	Diboron trioxide	1303-86-2	215-125-8	Toxic for reproduction (Article 57 c)	Glass,Ceramics,Flame retardants,Catalyst,Adhesive,Ink /paint,Insecticide and fungicide
79	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	6786-83-0	229-851-8	Carcinogenic (Article 57a)	Printing and writing ink Colored paper CFCs and glass cleaning agent
80	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	2451-62-9	219-514-3	Mutagenic (Article 57b)	Curing agent and coating resin (Curing agent for polyester) powder coating, Solder resist ink, Semiconductor sealing resin, Stabilizer (heat resistance, rigidity hardness, improved reactivity) of flame-retardant plastic
81	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	202-027-5	Carcinogenic (Article 57a)	Additives of Dry film products, pigments, dyes
82	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	202-959-2	Carcinogenic (Article 57a)	Dye material,Organic synthesis, intermediate,Applications Research and Development

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
83	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	2580-56-5	219-943-6	Carcinogenic (Article 57a)	Manufacture of ink-cleaner coating,Dye (Other moldings / plastic product / woven / packaging / paper),Diagnostic and analytical applications
84	Formamide	75-12-7	200-842-0	Toxic for reproduction (Article 57 c)	Intermediate, Solvent, Synthetic organic chemicals
85	Pyrochlore, antimony lead yellow	8012-00-8	232-382-1	Toxic for reproduction (Article 57 c)	Pigment
86	6-methoxy-m-toluidine (p-cresidine)	120-71-8	204-419-1	Carcinogenic (Article 57a)	Raw material, Intermediate
87	Henicosafluoroundecanoic acid	2058-94-8	218-165-4	vPvB (Article 57 e)	Surface-active agent
88	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	247-094-1, 243-072-0, 256-356-4, 260-566-1	Equivalent level of concern having probable serious effects to human health (Article 57 f)	Epoxy hardener

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
89	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 trans-isomers [1] are covered by this entry]	85-42-7, 13149-00-3, 14166-21-3	201-604-9, 236-086-3, 238-009-9	Equivalent level of concern having probable serious effects to human health (Article 57 f)	Epoxy hardener
90	Dibutyltin dichloride (DBTC)	683-18-1	211-670-0	Toxic for reproduction (Article 57 c)	Rubber additive, PVC Plasticizer
91	Lead bis(tetrafluoroborate)	13814-96-5	237-486-0	Toxic for reproduction (Article 57 c)	Plate electrolyte
92	Lead dinitrate	10099-74-8	233-245-9	Toxic for reproduction (Article 57 c)	Synthesis Raw material
93	Silicic acid, lead salt	11120-22-2	234-363-3	Toxic for reproduction (Article 57 c)	Glass Raw material
94	4-Aminoazobenzene	60-09-3	200-453-6	Carcinogenic (Article 57a)	Raw material, Intermediate
95	Lead titanium zirconium oxide	12626-81-2	235-727-4	Toxic for reproduction (Article 57 c)	electronic ceramics Raw material
96	Lead monoxide (lead oxide)	1317-36-8	215-267-0	Toxic for reproduction (Article 57 c)	Glass Raw material, Stabilization agent Raw material
97	o-Toluidine	95-53-4	202-429-0	Carcinogenic (Article 57a)	Raw material, Intermediate
98	3-ethyl-2-methyl-2-(3-methyl-butyl)-1,3-oxazolidine	143860-04-2	421-150-7	Toxic for reproduction (Article 57 c)	-

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
99	Silicic acid (H2Si2O5), 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	272-271-5	Toxic for reproduction (Article 57 c)	Lamp fluorescing agent
100	Trilead bis(carbonate)dihydroxide	1319-46-6	215-290-6	Toxic for reproduction (Article 57 c)	Electronic ceramics Raw material
101	Furan	110-00-9	203-727-3	Carcinogenic (Article 57a)	-
102	N,N-dimethylformamide	68-12-2	200-679-5	Toxic for reproduction (Article 57 c)	Synthesis, Solvent
103	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	-	-	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	Surface-active agent

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
104	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]	-	-	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	Surface-active agent, Ink, Paint
105	4,4'-methylenedi-o-toluidine	838-88-0	212-658-8	Carcinogenic (Article 57a)	Raw material, Solvent, Intermediate
106	Diethyl sulphate	64-67-5	200-589-6	Carcinogenic (Article 57a); Mutagenic (Article 57b)	Raw material, Solvent, Intermediate
107	Dimethyl sulphate	77-78-1	201-058-1	Carcinogenic (Article 57a)	Raw material、Solvent, Intermediate
108	Lead oxide sulfate	12036-76-9	234-853-7	Toxic for reproduction (Article 57 c)	Battery electrode
109	Lead titanium trioxide	12060-00-3	235-038-9	Toxic for reproduction (Article 57 c)	Electronic ceramics Raw material
110	Acetic acid, lead salt, basic	51404-69-4	257-175-3	Toxic for reproduction (Article 57 c)	Synthesis Intermediate, Corrosion-resistant Pigment
111	[Phthalato(2-)]dioxotrilead	69011-06-9	273-688-5	Toxic for reproduction (Article 57 c)	PVC Stabilization agent
112	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	214-604-9	PBT (Article 57 d); vPvB (Article 57 e)	Flame retardant
113	N-methylacetamide	79-16-3	201-182-6	Toxic for reproduction (Article 57 c)	Solvent

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
114	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	201-861-7	Toxic for reproduction (Article 57 c)	Polymer Raw material
115	1,2-Diethoxyethane	629-14-1	211-076-1	Toxic for reproduction (Article 57 c)	Ink,Paint Solvent
116	Tetralead trioxide sulphate	12202-17-4	235-380-9	Toxic for reproduction (Article 57 c)	Battery electrode, PVC Stabilization agent
117	N-pentyl-isopentylphthalate	776297-69-9	-	Toxic for reproduction (Article 57 c)	Plasticizer
118	Dioxobis(stearato)trilead	12578-12-0	235-702-8	Toxic for reproduction (Article 57 c)	PVC Stabilization agent
119	Tetraethyllead	78-00-2	201-075-4	Toxic for reproduction (Article 57 c)	Gasoline additive
120	Pentalead tetraoxide sulphate	12065-90-6	235-067-7	Toxic for reproduction (Article 57 c)	Battery electrode, PVC Stabilization agent
121	Pentacosafluorotridecanoic acid	72629-94-8	276-745-2	vPvB (Article 57 e)	Surface-active agent
122	Tricosafluorododecanoic acid	307-55-1	206-203-2	vPvB (Article 57 e)	Surface-active agent
123	Heptacosafluorotetradecanoic acid	376-06-7	206-803-4	vPvB (Article 57 e)	Surface-active agent
124	1-bromopropane (n-propyl bromide)	106-94-5	203-445-0	Toxic for reproduction (Article 57 c)	Washing solvent
125	Methoxyacetic acid	625-45-6	210-894-6	Toxic for reproduction (Article 57 c)	Intermediate
126	4-methyl-m-phenylenediamine (toluene-2,4-diamine)	95-80-7	202-453-1	Carcinogenic (Article 57a)	Raw material, Solvent

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
127	Methyloxirane (Propylene oxide)	75-56-9	200-879-2	Carcinogenic (Article 57a); Mutagenic (Article 57b)	Raw material, Solvent
128	Trilead dioxide phosphonate	12141-20-7	235-252-2	Toxic for reproduction (Article 57 c)	PVC Stabilization agent
129	o-aminoazotoluene	97-56-3	202-591-2	Carcinogenic (Article 57a)	Raw material, Intermediate
130	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	284-032-2	Toxic for reproduction (Article 57 c)	Plasticizer
131	4,4'-oxydianiline and its salts	101-80-4	202-977-0	Carcinogenic (Article 57a); Mutagenic (Article 57b)	Raw material, Intermediate
132	Orange lead (lead tetroxide)	1314-41-6	215-235-6	Toxic for reproduction (Article 57 c)	Paint Pigment
133	Biphenyl-4-ylamine	92-67-1	202-177-1	Carcinogenic (Article 57a)	Raw material, Intermediate
134	Diisopentylphthalate	605-50-5	210-088-4	Toxic for reproduction (Article 57 c)	Plasticizer
135	Fatty acids, C16-18, lead salts	91031-62-8	292-966-7	Toxic for reproduction (Article 57 c)	PVC Stabilization agent
136	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	204-650-8	Equivalent level of concern having probable serious effects to human health (Article 57 f)	Bloating agent
137	Sulfurous acid, lead salt, dibasic	62229-08-7	263-467-1	Toxic for reproduction (Article 57 c)	-

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
138	Lead cyanamidate	20837-86-9	244-073-9	Toxic for reproduction (Article 57 c)	Paint Pigment
139	Cadmium	7440-43-9	231-152-8	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Pigment Plate Battery
140	Ammonium pentadecafluorooctanoate (APFO))	3825-26-1	223-320-4	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	Surface-active agent
141	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]	-	-	Equivalent level of concern having probable serious effects to the environment (Article 57 f)	Surface-Active Agent, Paint, Ink, Industrial Detergent
142	Pentadecafluorooctanoic acid (PFOA)	335-67-1	206-397-9	Toxic for reproduction (Article 57 c); PBT (Article 57 d)	Surface-active agent
143	Dipentyl phthalate (DPP)	131-18-0	205-017-9	Toxic for reproduction (Article 57 c);	Plasticizer

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
144	Cadmium oxide	1306-19-0	215-146-2	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Pigment Plate
145	Cadmium sulphide	1306-23-6	215-147-8	Carcinogenic (Article 57a); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Coloring agent
146	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	217-710-3	Carcinogenic (Article 57a);	Colorant, Clinical Reagent
147	Dihexyl phthalate	84-75-3	201-559-5	Toxic for reproduction (Article 57 c);	Plasticizing Agent
148	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	202-506-9	Toxic for reproduction (Article 57 c);	Organic rubber chemicals (vulcanization accelerators)
149	Trixylyl phosphate	25155-23-1	246-677-8	Toxic for reproduction (Article 57 c);	Vinyl chloride resin flame retardant plasticizer for agriculture, Turbine flame retardant hydraulic oil raw materials such as power plants

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
150	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)]bis(4-aminonaphtha-lene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	209-358-4	Carcinogenic (Article 57a);	Direct dye, vital stain
151	Lead di(acetate)	301-04-2	206-104-4	Toxic for reproduction (Article 57 c);	Lead compound raw materials, waterproofing agents, analytical reagents, medicines (astringent agents)
152	acid, dihexyl ester, branched and linear	68515-50-4	271-093-5	Toxic for reproduction (Article 57 c)	Plasticizer
153	Cadmium chloride	10108-64-2	233-296-7	Carcinogenic (Article 57a); Mutagenic (Article 57b); Toxic for reproduction (Article 57c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Plating agents, pigments, paints, stabilizers, catalyst
154	Sodium perborate; perboric acid, sodium salt	15120-21-5;11138-47-9	239-172-9 ; 234-390-0	Toxic for reproduction (Article 57 c)	Laundry Detergent, Dishwasher Detergent Bleach Cleaning Products, Cosmetics
155	Sodium peroxometaborate	7632-04-4	231-556-4	Toxic for reproduction (Article 57 c)	Oxidizing bleach, cleaning disinfectant, preservative, dyeing assistant, quasi-drug raw material
156	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	247-384-8	PBT (Article 57 d); vPvB (Article 57 e)	UV stabilizers, light stabilizers, paints for automobiles, paints for general industry, construction and building materials · For UV · RB effect paint · electronic materials (mainly optical materials)

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
157	2-benzotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	3846-71-7	223-346-6	PBT (Article 57 d); vPvB (Article 57 e)	UV absorber
158	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	239-622-4	Toxic for reproduction (Article 57 c)	Heat stabilizers such as PVC, hard PVC films and sheets
159	Cadmium fluoride	7790-79-6	232-222-0	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Reagent, synthetic intermediate, battery, plating, pigment, contact material
160	Cadmium sulphate	10124-36-4; 31119-53-6	233-331-6	Carcinogenic (Article 57 a); Mutagenic (Article 57 b); Toxic for reproduction (Article 57 c); Equivalent level of concern having probable serious effects to human health (Article 57 f)	Reagent, catalyst, plating (printed circuit board), pigment, battery

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
161	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-stannatetradecanoate (reaction mass of DOTE and MOTE)	-	-	Toxic for reproduction (Article 57 c)	-
162	1,2-benzenedicarboxylic acid, di-C6-10-alkyl esters; 1,2-benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with ? 0.3% of dihexyl phthalate (EC No. 201-559-5)	68515-51-5,68648-93-1	271-094-0,272-013-1	Toxic for reproduction (Article 57 c)	Adhesives,Ppaints, Plasticizers,Lubricant
163	5-sec-butyl-2-(2,4-dimethylcyclo-hex-3-en-1-yl)-5-methyl-1,3-dioxane [1], 5-sec-butyl-2-(4,6-dimethylcyclo-hex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	-	-	vPvB (Article 57e)	Aroma chemicals, Soap, Detergent

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
164	Perfluoro-nonan-1-oic-acid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4	206-801-3	Toxic for reproduction (Article 57 c) PBT (Article 57 d)	Production of fluorine polymer process aid / lubricant additive / Surface-active agent for fire extinguisher / cleaning aids / fiber odor control agent / crystal display of waterproofing agent
165	Nitrobenzene	98-95-3	202-716-0	Toxic for reproduction (Article 57 c)	Synthetic intermediates of dyes and perfumes
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	253-037-1	vPvB (Article 57 e)	Coating, plastic, rubber and cosmetics of UV protection agents
167	2,4-di-tert-butyl-6-(5-chlorobenzotria-zol-2-yl)phenol (UV-327)	3864-99-1	223-383-8	vPvB (Article 57 e)	Coating, plastic, rubber and cosmetics of UV protection agents
168	1,3-propanesultone	1120-71-4	214-317-9	Carcinogenic (Article 57 a)	Electrolyte of the lithium ion battery
169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	200-028-5	Carcinogenic (Article 57a) Mutagenic (Article 57b) Toxic for reproduction (Article 57c)	Normally not manufactured intentionally but may occur as a constituent or impurity in other substances.
170	4,4'-isopropylidenediphenol	80-05-7	201-245-8	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health)	Manufacture of polycarbonate, epoxy resins and chemicals; hardener in epoxy resins

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
171	4-Heptylphenol, branched and linear substances with a linear and/or branched alkyl chain with a carbon number of 7 covalently bound predominantly in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof	-	-	Equivalent level of concern having probable serious effects to environment (Article 57 f)	Manufacture of polymers; formulation into lubricants
172	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts show/hide Nonadecafluorodecanoic acid	335-76-2	206-400-3	Toxic for reproduction (Article 57c) PBT (Article 57 d)	Lubricant, wetting agent, plasticiser and corrosion inhibitor Lubricant, wetting agent, plasticiser and corrosion inhibitor
	Ammonium nonadecafluorodecanoate	3108-42-7	221-470-5		
	Decanoic acid, nonadecafluoro-, sodium salt	3830-45-3	-		
173.	p-(1,1-dimethylpropyl)phenol	80-46-6	201-280-9	Equivalent level of concern having probable serious effects to environment (Article 57 f)	Manufacture of chemicals and plastic products
174	Perfluorohexane-1-sulphonic acid and its salts PFHxS	-	-	vPvB (Article 57e)	-

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
175	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP)	-	-	Endocrine disrupting properties (Article 57(f) - environment)	Lubricant additives, mold release agents, vehicle / machine lubrication, open system lubricants, grease
176	Chrysene	218-01-9, 1719-03-5	205-923-4	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	-
177	Cadmium nitrate	10022-68-1, 10325-94-7	233-710-6	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Ceramic coloring agent, battery, cadmium salt raw material
178	Cadmium hydroxide	21041-95-2	244-168-5	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Nickel and cadmium battery negative electrode, Thermophilic pigment
179	Cadmium carbonate	513-78-0	208-168-9	Carcinogenic (Article 57a) Mutagenic (Article 57b) Specific target organ toxicity after repeated exposure (Article 57(f) - human health)	Optical glass raw material, catalyst

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
180	Benz[a]anthracene	56-55-3, 1718-53-2	200-280-6	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	reagent
181	1,6,7,8,9,14,15,16,17,17,18,18-Dodecachloropentacyclo[12.2.1.16,9.02,13.05,10]octadeca-7,15-diene (“Dechlorane Plus”™)	-	-	vPvB (Article 57e)	Adhesive agent, sealant, material surface treatment agent production
182	Terphenyl, hydrogenated	61788-32-7	262-967-7	vPvB (Article 57e)	dhesives, additives for plastics, coatings, inks, heat transfer media, heating agents, etc.
183	Octamethylcyclotetrasiloxane	556-67-2	209-136-7	PBT (Article 57d) vPvB (Article 57e)	Semiconductor, cosmetic raw materials, synthetic resin, synthetic rubber, etc.
184	Lead	7439-92-1	231-100-4	Toxic for reproduction (Article 57c)	Semiconductor junction
185	Ethylenediamine	107-15-3	203-468-6	Respiratory sensitising properties (Article 57(f) - human health)	Paper processing agent (moistening agent), chelating agent raw material, synthetic resin curing agent raw material・sterilization and disinfection, insecticide raw material, fiber treating agent raw material (wrinkling agent, surfactant, dye fixing agent), synthetic resin plasticizer raw material, etc.
186	Dodecamethylcyclohexasiloxane	540-97-6	208-762-8	Toxic for reproduction (Article 57c)	Surfactant, defoaming
187	Disodium octaborate	12008-41-2	234-541-0	Toxic for reproduction (Article 57c)	Wood preservation, termite protection etc

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
188	Dicyclohexyl phthalate	84-61-7	201-545-9	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - human health)	Plasticizer (for moisture-proof cellophane, for acrylic lacquer, for heat sensitive adhesive), antiblocking agent for plastic surface
189	Decamethylcyclopentasiloxane	541-02-6	208-764-9	PBT (Article 57d) vPvB (Article 57e)	Mainly used as an intermediate to produce silicone rubber, silicone gel, silicone oil etc.
190	Benzo[ghi]perylene	191-24-2	205-883-8	PBT (Article 57d) vPvB (Article 57e)	For road, waterproof and anti-corrosion paint, fuel for steel making, oil smoke, electrode binder, fishing net dye, roof coating, cast iron pipe coating, etc.
191	Benzene-1,2,4-tricarboxylic acid 1,2 anhydride	552-30-7	209-008-0	Respiratory sensitising properties (Article 57(f) - human health)	Synthetic raw materials (water-soluble paint, ester heat-resistant plasticizer, polyamideimide, adhesive, surfactant, dye, pigment), curing agent (epoxy resin), processing agent (fiber treatment agent), stabilizer
192	Pyrene	129-00-0 1718-52-1	204-927-3	PBT (Article 57d) vPvB (Article 57e)	－
193	Phenanthrene	85-01-8	201-581-5	vPvB (Article 57e)	Coating, adhesive It is released into the environment
194	Fluoranthene	206-44-0 93951-69-0	205-912-4	PBT (Article 57d) vPvB (Article 57e)	Coating, adhesive It is released into the environment
195	Benzo[k]fluoranthene	207-08-9	205-916-6	Carcinogenic (Article 57a) PBT (Article 57d) vPvB (Article 57e)	Coating, adhesive

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
196	2,2-bis(4'-hydroxyphenyl)-4-methylpentane	6807-17-6	401-720-1	Toxic for reproduction (Article 57c)	Thermal paper, epoxy resin raw material, etc.
197	1,7,7-trimethyl-3-(phenylmethylene)bicyclo[2.2.1]heptan-2-one	15087-24-8	239-139-9	Endocrine disrupting properties (Article 57(f) - environment)	Sunscreen and other cosmetics
198	Tris(4-nonylphenyl, branched and linear) phosphite (TNPP) with ≥ 0.1% w/w of 4-nonylphenol, branched and linear (4-NP)	-	-	Endocrine disrupting properties (Article 57(f) - environment)	Antioxidants for polymer stabilization Antioxidant for plastic addition, organic rubber chemicals (anti-aging agent)
199	4-tert-butylphenol	98-54-4	202-679-0	Endocrine disrupting properties (Article 57(f) - environment)	Adhesive, printing ink, Raw material for oil-soluble phenolic resins used in varnishes Polycarbonate resin Various synthetic resin modifiers Raw materials for fragrances and surfactants
200	2-methoxyethyl acetate	110-49-6	203-772-9	Toxic for reproduction (Article 57c)	Cellsolv solvent Manufacture of photographic film and lacquer, solvent such as nitrocellulose, cellulose acetate, synthetic resin, semiconductor and electronic parts

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
201	2,3,3,3-tetrafluoro-2-(heptafluoro-propoxy)propionic acid, its salts and its acyl halides covering any of their individual isomers and combinations thereof	-	-	Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)	Fluorosurfactant Processing aids in the production of fluorinated polymers
202	2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone	119313-12-1	404-360-3	Toxic for reproduction (Article 57c)	Used for high-speed offset and flexo ink, UV inkjet, resist, printing plate, solder mask, etc.
203	2-methyl-1-(4-methylthiophe-nyl)-2-morpholinopropan-1-one	71868-10-5	400-600-6	Toxic for reproduction (Article 57c)	Used for high-speed offset and flexo ink, UV inkjet, resist, printing plate, solder mask, etc.
204	Diisohexyl phthalate	71850-09-4	276-090-2	Toxic for reproduction (Article 57c)	Sealant polymer, plasticizer
205	Perfluorobutane sulfonic acid (PFBS) and its salts	-	-	Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)	Alternate candidate of "PFOS"

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
206	1-vinylimidazole	1072-63-5	214-012-0	Toxic for reproduction (Article 57c)	Curing agent for epoxy resin, industrial germicide, rust preventive, pharmaceutical raw material
207	2-methylimidazole	693-98-1	211-765-7	Toxic for reproduction (Article 57c)	Main materials and intermediates for the synthesis of pharmaceuticals and photographic chemicals
208	Butyl 4-hydroxybenzoate	94-26-8	202-318-7	Endocrine disrupting properties (Article 57(f) – human health)	Preservatives, rust preventives for cosmetics and pharmaceuticals
209	Dibu- ty- lbis(pentane-2,4-dionato-O,O')tin	22673-19-4	245-152-0	Toxic for reproduction (Article 57c)	Stabilizer for plastics, catalyst for resin synthesis
210	bis(2-(2-methoxyethoxy)ethyl) ether	143-24-8	205-594-7	Toxic for reproduction (Article 57c)	Formulation or refilling of mixtures (solder flux, etc.). Use on factory sites (gas absorbers, chemical processes, reaction solvents, extracts, solvents, lubricants). Professional applications (lubricants, non-responsive process aids, ink and toner applications, recording media)

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
211	Dioctyltindilaurate, stannane, dioctyl-, bis(coco acyloxy) derivs. and any other stannane, dioctyl-, bis(fatty acyloxy) derivs. wherein C12 is the predominant carbon number of the fatty acyloxy moiety	3648-18-8 (IEC62474), 91648-39-4, etc.	222-883-3 ,293-901-5, etc.	Toxic for reproduction (Article 57c)	Formulation or refilling (dry blending, enamel production, powder coating and ink production). Use on factory sites (catalysts, polymer manufacturing, calendar molding, extrusion molding, injection molding, coating, steam foam manufacturing, polymerization bans, rubber tire manufacturing additives, polymers, enamel and coated wires, coating and ink applications, Reactive catalyst, intermediate). Professional applications (catalyst acceleration modifiers, coatings and ink applications). Consumer use (catalytic reaction modifier)
212	1,4-dioxane	123-91-1	204-661-8	Carcinogenic (Article 57a) Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)	Detergents, synthetic leather solvents, reaction solvents, chlorine-based solvent stabilizers, pharmaceutical raw materials

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
213	2,2-bis(bromomethyl)propane1,3-diol (BMP) 2,2-dimethylpropan-1-ol, tribromo derivative/3-bromo-2,2-bis(bromomethyl)-1-propanol (TBNPA) 2,3-dibromo-1-propanol (2,3-DBPA)	3296-90-0 1522-92-5 36483-57-5 96-13-9	221-967-7 - 253-057-0 202-480-9	Carcinogenic (Article 57a)	Flame Retardant for Unsaturated Polyester Resin / Urethane, Organic Synthetic Raw Material (Pharmaceuticals, Agricultural Chemicals, Electrical Materials, Industrial Use, etc.), Flame Retardant Intermediate
214	2-(4-tert-butylbenzyl)propionaldehyde and its individual stereoisomers	-	-	Toxic for reproduction (Article 57c)	Fragrance (mixed flower fragrances such as lily, muguet, lilac)
215	4,4'-(1-methylpropyliden e)bisphenol; (bisphenol B)	77-40-7	201-025-1	Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - human health)	Organic synthetic intermediate
216	Glutaral	111-30-8	203-856-5	Respiratory sensitising properties (Article 57(f) - human health)	Bactericides (endoscopic equipment used in hospitals, disinfectants for surgical and dental equipment), algae killing agents such as cooling towers, developer of roentgen photographs, reagents, cross-linking agents, sample fixatives for electron microscope observation, Tanning agent, reagent (for electron microscope), virus killing agent

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
217	Medium-chain chlorinated paraffins (MCCP) [UVCB substances consisting of more than or equal to 80% linear chloroalkanes with carbon chain lengths within the range from C14 to C17]	-	-	PBT (Article 57d) vPvB (Article 57e)	Flame-retardant resin raw material
218	Orthoboric acid, sodium salt	-	-	Toxic for reproduction (Article 57c)	-
219	Phenol, alkylation products (mainly in para position) with C12-rich branched or linear alkyl chains from oligomerisation, covering any individual isomers and/ or combinations thereof (PDDP)	-	-	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) environment) Endocrine disrupting properties (Article 57(f) - human health)	-
220	(±)-1,7,7-trimethyl-3-[(4-methylphenyl)methylene]bicyclo[2.2.1]heptan-2-one covering any of the individual isomers and/or combinations thereof (4-MBC)	-	-	Endocrine disrupting properties (Article 57(f) - human health)	UV filters for cosmetics and personal care products
221	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol	119-47-1	204-327-1	Toxic for reproduction (Article 57c)	Plastic Antioxidants, Organic Rubber Chemicals (Anti-aging Agents)

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
222	S-(tricyclo(5.2.1.0'2,6)deca-3-en-8(or 9)-yl O-(isopropyl or isobutyl or 2-ethylhexyl) O-(isopropyl or isobutyl or 2-ethylhexyl) phosphorodithioate X4261	255881-94-8	401-850-9	PBT (Article 57d)	Lubricant, grease
223	tris(2-methoxyethoxy)vinylsilane	1067-53-4	213-934-0	Toxic for reproduction (Article 57c)	Silane coupling agent
224	N-(hydroxymethyl)acrylamide	924-42-5	213-103-2	Carcinogenic (Article 57a) Mutagenic (Article 57b)	Use as monomer for polymerization, use as fluoroalkyl acrylate copolymer and use in paints/coating films
225	1,1'-[ethane-1,2-diylbisoxy]bis[2,4,6-tribromobenzene]	37853-59-1	253-692-3	vPvB (Article 57e)	Used as an additive flame retardant. (Those that do not chemically bond with the base material and remain in the molded product as they are) Used for ABS, HIPS, thermoplastics, thermosets, polycarbonates, coatings, fibers, etc.
226	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	201-236-9	Carcinogenic (Article 57a)	Brominated Flame Retardant, RoHS Restricted Substance Candidate. Nearly 90% of them are said to be used as reactive flame retardants, but they are also used as additives such as ABS resin. (The RoHS restriction dossier states that the residue in the product is less than 0.1%.)

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
227	4,4'-sulphonyldiphenol	80-09-1	201-250-5	Toxic for reproduction (Article 57c) Endocrine disrupting properties (Article 57(f) - environment) Endocrine disrupting properties (Article 57(f) - human health)	Switzerland has already banned BPS in thermal paper at 0.02w%. Also used for leather tanning.
228	Barium diboron tetraoxide	13701-59-2	237-222-4	Toxic for reproduction (Article 57c)	Coatings and paints, thinners, paint strippers, etc.
229	bis(2-ethylhexyl) tetrabromophthalate covering any of the individual isomers and/or combinations thereof Bis(2-ethylhexyl) tetrabromophthalate EC No.: 247-426-5 | CAS No.: 26040-51-7	-	-	vPvB (Article 57e)	Additive flame retardant and plasticizer for rubber and plastic products. *Brominated adduct of DEHP and a flame-retardant plasticizer.
230	Isobutyl 4-hydroxybenzoate	4247-02-3	224-208-8	Endocrine disrupting properties (Article 57(f) - human health)	-

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
231	Melamine	108-78-1	203-615-4	Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)	For melamine monomer, not melamine resin
232	Perfluoroheptanoic acid and its salts	6130-43-4 21049-36-5 375-85-9 20109-59-5	228-098-2 - 206-798-9 243-518-4 |	Toxic for reproduction (Article 57c) PBT (Article 57d) vPvB (Article 57e) Equivalent level of concern having probable serious effects to human health (Article 57(f) - human health) Equivalent level of concern having probable serious effects to the environment (Article 57(f) - environment)	-
233	reaction mass of 2,2,3,3,5,5,6,6-octafluoro-4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl)morpholine and 2,2,3,3,5,5,6,6-octafluoro-4-(heptafluoropropyl)morpholine	-	473-390-7	vPvB (Article 57e)	-

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
234	bis(4-chlorophenyl) sulphone	80-07-9	201-247-9	vPvB (Article 57e)	Used in industrial applications, etc. for the production of polymers, rubbers and other chemicals
235	diphenyl(2,4,6-trimethylbenzoyl)phosphine oxide	75980-60-8	278-355-8	Toxic for reproduction (Article 57c)	Chemicals, Inks & Toners, Dispensable Products, Adhesives, Sealants, Polymers & Fillers, Putties, Plasters & Clays, etc.
236	2,4,6-tri-tert-butylphenol	732-26-3	211-989-5	Toxic for reproduction (Article 57c) PBT (Article 57d)	Industrial use of fuel additives and additive diesel and use as intermediates
237	2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol (UV-329)	3147-75-9	221-573-5	vPvB (Article 57e)	Used in parent material applications including coating fluids, adhesives, sealants, printing inks, abrasive and wax mixtures, textile dyeing, finishing products, impregnation agents. Used in cleaning agents, fillers, putties, plasters, clays, cosmetics, fragrances, air fresheners, biocidal products, photochemicals and metal and non-metal surface treatments.
238	2-(dimethylamino)-2-[(4-methylphenyl)methyl]-1-[4-(morpholin-4-yl)phenyl]butan-1-one	119344-86-4	438-340-0	Toxic for reproduction (Article 57c)	Photoinitiators in UV-inks used in printed or coated articles (plastics and papers)
239	Bumetrizole (UV-326)	3896-11-5	223-445-4	vPvB (Article 57e)	Used in parent material applications including coating fluids, adhesives, sealants, printing inks, abrasive and wax mixtures, textile dyeing, finishing products, impregnation agents. Used in cleaning agents, fillers, putties, plasters, clays, cosmetics, fragrances, air fresheners, biocidal products, photochemicals

№	REACH SVHC(limit material)			Suggestion reason	Mainly use,handling etc(Japan,EU)
	Material name	CAS No.	EC No.		
					and metal and non-metal surface treatments.
240	Oligomerisation and alkylation reaction products of 2-phenylpropene and phenol Phenol, methylstyrenated EC No.: 270-966-8 | CAS No.: 68512-30-1	-	'700-960-7	vPvB (Article 57e)	Rubber adjustment, coating liquid, adhesive and ink
241	Bis(α,α-dimethylbenzyl) peroxide	80-43-3	201-279-3	Toxic for reproduction (Article 57c)	It is used in products such as pH adjusters, flocculants, precipitants and neutralizers.

The threshold in REACH SVHC specified in table 5-5 should be under 0.1% (1,000ppm) of the article mass.

Table 5-6 Supplementary explanations

Items	Comments
Permissible concentration per homogeneous material	It means that permissible concentration for banned substances per homogeneous material which constitutes products. The homogeneous material means a material which cannot be mechanically divided into sub materials any more. Film coated with painting, printing or plating is the homogeneous material. If the film is formed with some layers, each layer is the homogeneous material. If it would be “metal and its compounds”, concentration converted into metal would be used. (same as paragraph 6)
Intentional use	It means that adding banned substances for the purpose of improving product characteristics and/or its quality on purpose.
Control value	It means that concentration of banned substances which is considered not to exceed without intentional use or mixing / contamination, and to be monitored by Sanken Group and suppliers. Over control value would be a signal that announces the risk of over restriction value. In case of over control value, re-analysis, emergency measure, and corrective/preventive action should be taken for resolution of the over control value.
Restriction value	It equivalents to the legally regulated value and any excess ions will be unacceptable.

Exceptions of RoHS/ELV directives	Sanken Group accepts the exceptions of RoHS and ELV directives. However, the exception of deca-BDE (a kind of PBDE) in RoHS directive is unacceptable in consideration of customers' requirements etc as of July, 2007. RoHS and ELV exceptions which are scarcely related to Sanken products are not listed in the Table 5 – 1.
Restriction for purchasing of two raw materials (Recommended use of four raw materials)	Sanken group selects two raw materials of "recycled resin and coated wire (except for the magnet wire)" manufactured by customers who have SONY green partner approval. According to 4 raw materials such as "plastic, painting, ink, and magnet wire", Sanken group selects the materials manufactured by whom SONY recommends raw material business partner as much as possible. It wouldn't be applied when SANKEN group does not sell SANKEN products to SONY group.
Purchases without this standard	Sanken Group applies RoHS/ELV to the products as much as possible even they do not have this standard. However, Sanken Group sometimes purchases products without this standard.
Efforts for reduction of hazardous chemical substances	Sanken Group and suppliers shall make constant efforts for reduction or disuse of hazardous chemical substances in accordance with technology innovation.
Compliance with laws and regulations	In addition to banned substances specified in this standard, there are a number of banned substances regulated in the chemical substance assessment and restriction law and the law for worker's safety and hygiene. Sanken Group and suppliers shall comply with all laws and regulations relating to chemical substances.

6. Controlled substances contained in products

Regarding the products in Table 3-1, The Sanken Group refer "Controlled Substances Contained in Products(hereinafter referred to as controlled substances)"for which the Sanken Group and its business partners need to recognize, and we specify in Table 6-1.

Banned substances in No.1 are a part of managed substances. Though the managed substances after №2 in Tables 6-1 are the chemical substances to be reduced as possible, they are not banned sub-stances.

These managed substances are added the substances based on the customer request to the substances specified in the IEC62474. Please refer IEC62474 for the details.

Understanding the managed substances is essentially important. Furthermore, understanding the entire chemical substances constituting products is needed these days.

Table 6-1 Controlled substances

№	Categories	Managed substances
1	Banned substances described in Table 4-1	Refer to Table 4-1 for the substance names. (Not only the confirmation of non-content in the banned applications, but also the grasp of the content amount in the allowed applications.)
	REACH SVHC listed in Table 5-5	◇ See Table 5-5 for substance names. ◇ If it is contained, we will discuss how to deal with it.
2	Metal and its compounds	Arsenic and its compounds
		Beryllium (Be) and its compounds (other than Beryllium oxide)
		Bismuth (Bi) and its compounds
		Selenium (Se) and its compounds
		Nickel (Ni) and its compounds (Only in the applications for articles that may come into direct and prolonged contact with human skin)
3	Halogenated organic compounds	Brominated flame retardants (other than PBBs or PBDEs)
		Chlorinated organic compounds (other than banned substances)
4	Chlorates	Perchlorate and its compounds
5	Antimony and antimony compounds	Antimony and antimony compounds
6	GADSL	D and substance of D/P

		D: Declarable (reportable substances) D/P: Declarable /Prohibited (Basically banned substances. But if you use them, report Sanken their use.)
7	Carifornia proposition65	Substances listed in California law, USA
8	Per- and polyfluoroalkyl substances (PFAS) Perfluoroalkyl substances and polyfluoroalkyl substances (PFAS)	REACH Restriction intention announcement
	Threshold: Understanding managed substances which content more than 1000ppm (more than 100pm only for cadmium) per homogeneous material. However, the content of managed substances which are used on purpose should be grasped even the threshold is less than the standard.	

7. Management system for chemical substances in products

Sanken Group and suppliers establish and operate the management system for chemical substances in products according to the conditions of the organizations. This management system should include action items shown in **Table 7-1** and **Table 7-2**, and the action to guarantee the non-content of banned substances to be taken.

Table 7-1 General matters

№	Action items	Briefs of action
1	Policy	Create a document including the basic policy of top management regarding "the management of chemical substances in products" (hereafter "substance management"), and inform it to the related parties.
2	Legal, customer's and other requirements	Clarify legal, customer's and other requirements regarding managed substances in products, and inform it to the related parties.
3	Own requirements	Clarify own requirements regarding managed substances in products, and inform it to the related parties.
4	Improvement plans	Create improvement plans, implement them, and manage their progress regarding managed substances in products.
5	Organizational systems and roles	Create organizational systems for managed substances in products and clarify roles and responsibilities.
6	Education and training	Plan and implement education and training programs regarding managed substances in products.
7	Documents and records	Create, maintain, and use documents that provide managed substances in products properly. Create and keep records of activities regarding managed substances in products properly.
8	Communication	Create and use a framework for the exchange and sharing of information regarding managed substances in products both internally and externally.
9	Internal audits	Implement internal audits about the system and operation regarding managed substances in products.
10	Management review	Implement management review by top management about the system and operation regarding managed substances in products, based on the results of the internal audits.

Table 7-2 Matters related to development through shipment of products

№	Action items	Briefs of action
1	Development of products	Design the products that satisfy own and customer's requirements, and verify compliance to these requirements.
2	Selection of material suppliers	Investigate substance management systems of material suppliers, and select suppliers based on the investigation results. Request suppliers for the improvements of the system as necessity.

3	Management of manufacturing subcontractors	Investigate substance management systems of manufacturing subcontractors, and select the subcontractors based on the investigation results. Request the manufacturing subcontractors for the improvements of the system as necessity.
		Select the manufacturing subcontractors for Sanken products from members of Sony Green partner certified companies.(Specific products)
4	Obtaining and confirmation of substance content information	Obtain substance content information of purchased parts and materials regularly, and confirm if it meets own and specific customer's requirements.
		As a component analysis, apply analysis methods, including preprocessing methods of samples, which customers and industry allow.
5	Confirmations at acceptance of materials	Confirm if the materials have done with the confirmation above, and accept these materials.
		When examination transcripts or the similar documents are attached to delivered materials, confirm if the examination results meet own and customer's requirements.
		As for materials with concerning the content of banned substances (hereafter, concerned materials), implement receiving inspections of concerned materials with proper frequency and method corresponding to the situation. (e.g. fluorescent X-ray analysis)
6	Process management	Confirm whether materials containing banned substances are used or not in manufacturing process. When using them, ensure to prevent incorrect use and contamination caused by them to target products. (e.g. Identification, isolation, cleaning, in-process inspections)
		If characteristic change and content density of substances occur because of chemical reactions, volatilizing, etc. in manufacturing processes, understand and control the influence on final products by these changes.
		Control manufacturing processes so that materials which should not be contained to the target products (e.g. transportation tools for products, machine oils, cleaning agent for equipments, etc.) would not be the cause of contamination for the products by banned substances.
7	Confirmations at shipment of products	Implement and operate a mechanism in which products are shipped only after the confirmations of certain operational controls have been done in manufacturing processes as to contained substances.
		As for products containing questionable materials, implement inspections at shipment of the products according to frequency and method corresponding to the situation. (e.g. fluorescent X-ray analysis)
8	Management of change	Establish and operate a mechanism for the management corresponding to each of the changes in designs, manufacturing processes, materials, and etc.
		If the change is deemed to potentially influence contained substances in products, obtain and confirm again the substance content information in clause 4 above.
9	Management of Non- conformity	Establish and operate a mechanism for the handling of non-conformity including that of substance management.
10	Traceability	Establish and operate a mechanism which manufacturing histories and used materials can be traced from shipped products.

8. Submission of survey report of environment-restricted substances

8–1 Requirement

If parts and raw materials in “Table 3-1 Ordered Products to which this guide line is applied” correspond to the below cases, please prepare any document and submit to Sanken

(1) Newly purchased products

(2) Change of raw materials

(3) Change of production process

(4) Change of production site

(5) Other than the above where our responsible person determines that the submission is necessary

8–2 Documents to be submitted

The following 3 documents shall be submitted.

(1) Guarantee compliance substances contained in products

This document guarantee that the management of environment restricted substances that Sanken specifies conform with any standard.

In the case that any of environment restricted substances is intentionally used, please fill in substance's name and content to "Composition table of products".

And fill in Sanken's parts name, parts number too.

(2) Report of result of precision analysis

As to Cd,Pb,Hg,Cr^{6+} and specific bromine compounds (PBB, PBDE),phthalates four substances (DEHP or DOP / BBP / DBP / DIBP) specified in Table 5 – 1 prohibited substances of RoHS directive, please attach the result of measurement of contents and the report of analysis results (analysis data) issued by an in institute or laboratory.

In principle, English language shall be used. Although Japanese language is acceptable, you may be requested to submit the English translation in case of need.

<Method for description of analysis results>

a) Refer to IEC62321, pre-treatment for analysis and measurement are executed.

b) The process flow for analysis shall be attached.

c)The sample's photo for analysis shall be attached.

d) The expiration date of the analysis data is one year from the date of the measurement. Please submit the analysis data within one year from the measurement day.

<analysis institution>

a)The laboratory is authorized certification of ISO/IEC17025, or there are international institutions such as SGS, INTERTEC.

b)If you submit SGS TAIWAN's analysis report, please check mark in the upper Page1. If this mark is「?」 we are not able to receive it.

(3) Composition table of products(The names of each part of the product and the table describing the chemical substances contained in each part)

Important matter : Please disclose all contained chemical substances.

Materials related to know-how can be "non-disclosed". However, please disclose the management / prohibited substances specified by our company.

Article: Please submit a), b).

a) chemSHERPA-AI

b) Your company's "Composition table of products".

Preparation, substance: Please submit c), d).

c) Safety data sheet

d) chemSHERPA-CI

8–3 Preparation of survey report

Since a wide range of products including raw materials and assemblies are required to be reported, the blank form of the report will be distributed by our person in charge of the purchasing department.
When you receive a request from our person in charge, please submit this report quickly.

8–4 Request for submission of reports

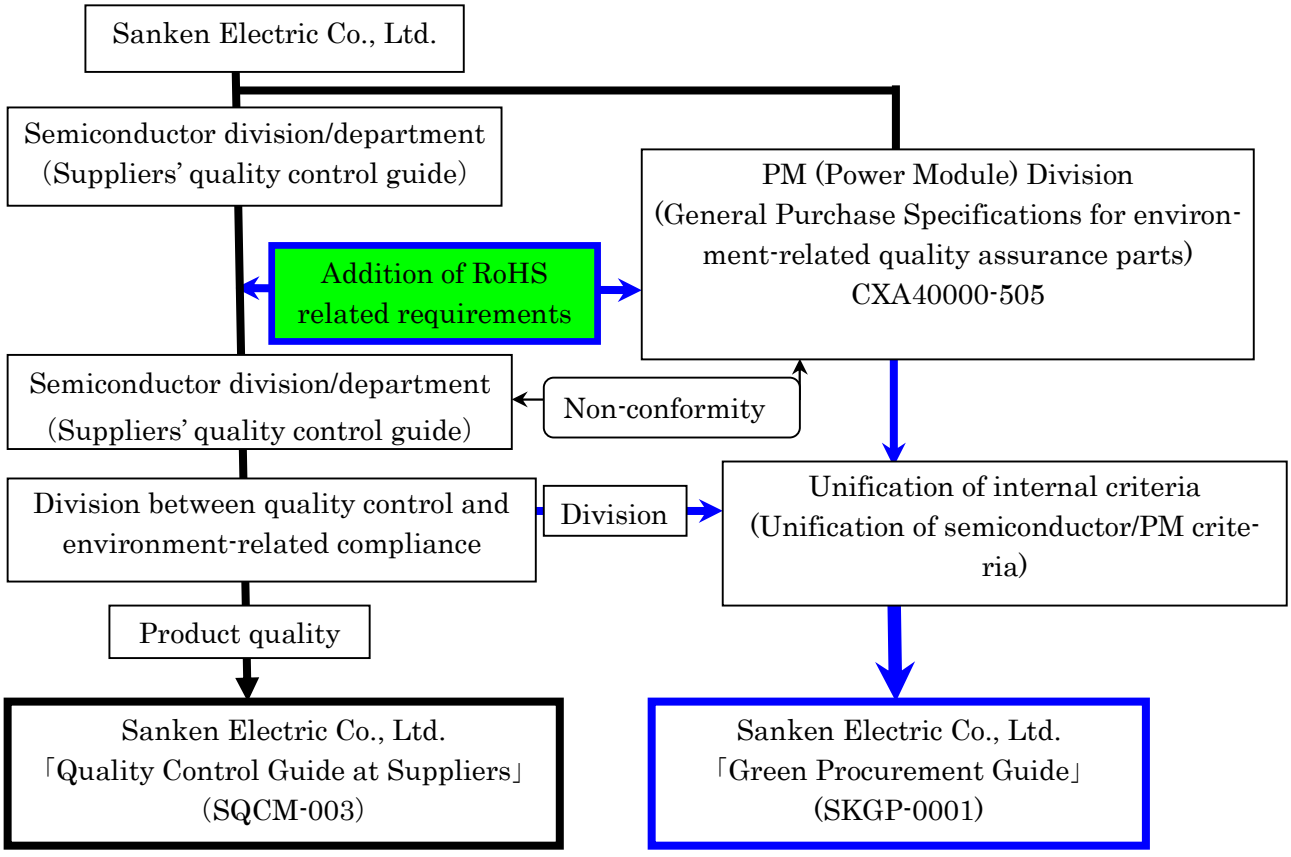
We have promoted ISO14001 activities for reducing the environment restricted substances.
You are cordially requested to send us the survey report of environment restricted substances and related documents by using the electronic mail (E-mail) as far as possible.
(Please refrain from using the facsimile.)

9. Protection of confidential information

We assure you that information or documents which we receive from suppliers for the above survey will be used solely for the purpose of this survey to protect the confidentiality of the information.

10. Process of the "Green Procurement Guide" establishment

The Quality Control Guide is divided into two parts, one for quality requirements and another for environment-related requirements.
For the purpose of correcting differences among different divisions/departments and unifying the standards, the Green Procurement Guide is issued.



＊Notice to suppliers

(1) The General Purchase Specifications for Environment-Related Quality Assurance Parts (CXA40000-505) distributed by the PM Division are replaced by the Green Procurement Guide, but as the contents are not substantially different from the delivery specifications of PM Division, the delivery specifications will not be revised.

(2) The Agreement made by and between the semiconductor BU and suppliers will continue to be effective, since the restricted values of contents are not changed significantly.

11.Revision history of the guide

Rev.21(Feb.25.2019)

Table 5-1 RoHS substances

Add "(Excluding applications: Testing, research, measurement.)" To the item of each substance

Add [Exemption (Pb)] Added　7(c)- Ⅰ、-2,15,15(a)

Table 5-3 Other Banned Substances

Removed double correction line part and phthalic acid deadline

Table 5-5　REACH　SVHC

Delete the term "other"

Added ED /88/2018

Rev.22(Sep.13.2019)

Table 5-2 RoHS substances

Changed the control value of phthalic acids

Table 5-3 Other Banned Substances

Separate PFOS and PFOA items

Table 5-5　REACH　SVHC

Delete the term "other"

Added ED / 71 / 2019

Rev.23(Feb.6.2020)

Table 5-5　REACH　SVHC

Added ECHA / 01 / 2020

Rev.24(Aug.17.2020)

Table 5-1 RoHS substances

Added Pb control value annotation. Revised deadline for “RoHS exemption”.

Table 5-2 RoHS substances

Added Pb control value annotation.

Table 5-3 Other Banned Substances

Deleted 4 substances of RoHS phthalic acid

Table 5-5　REACH　SVHC
Added D(2020)4578-DC

Rev.25(Feb.1.2021)
Table 5-5　REACH　SVHC
Added D(2020)9139-DC

Rev.26(Jul.21.2021)
Table 4-1　List of banned substances
Added No65 Persistent, Bioaccumulative, and Toxic (PBT) Chemicals under TSCA Section 6(h)
Table 5-3 Other Banned Substances
Addition of 2 substances at the end of the table
Table 5-5　REACH　SVHC
Added SVHC D(2021)4569-DC No212-No219
Table 6-1 Controlled substances
Added No7 Carifornia proposition65

Rev.27(Feb.1.2022)
Table 5-5　REACH　SVHC
Added SVHC D(2021)10043-DC No220-No223

Rev.28(Jul.19.2022)
Table 2-1 Change JIG to IEC62474
Table 4-I PFHxS addition, number re-assignment, large classification (organic fluorine compound, specific phthalic acid addition)
Table 5-3 Adding PFHxS
5-5 REACH SVHC (substances of very high concern)
SVHC D (2022) 4187-DC added No. 224
6. Controlled Substances Contained in Products　JIG changed to IEC62474
Table 6-1 Item 8 PFAS Added

Rev.29(Feb.13.2023)
Table 4-1 PFCA addition, serial number deletion
Table 5-3 Adding PFCA
Table 5-5 REACH SVHC (substances of very high concern)
SVHC D (2022) 9120-DC added No225-233
Table 6-1 Added REACH SVHC to controlled substance No.1

Rev.30(Jul.31.2023)
Table2-1 Added POPs Convention

Table 4-1 added

Decabromodiphenyl ether (DecaBDE)

Declorane Plus (DP)

Pentachlorophenol (PCP)

UV-328

Substances subject to the POPs Convention

Table5-3

Revised description

Hexabromocyclododecane (HBCDD)

Added

Declorane Plus (DP)

Pentachlorophenol (PCP)

Decabromodiphenyl ether (DecaBDE)

UV-328

Substances subject to the POPs Convention

Table5-5　REACH　SVHC

SVHC D(2023)3788-DC added No234-235

Rev.31(Mar. 1.2024)

Table5-5　REACH　SVHC

SVHC D(2023)8585-DC added No236-240

Rev.32(Oct. 11.2024)

Table5-5　REACH　SVHC

D(2024)4144-DC added No241