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### 1. Purpose

The purpose of this Specification is to clarify substances to be prohibited of use and substances to be abolished totally among environment-related substances contained in parts and materials constituting Rubycon products or used for such products, and to make such substances known to every person in Rubycon and also to every supplier of such parts and materials with a view to minimizing environmental load resulting from Rubycon products.

### 2. Scope

This Specification shall apply to all parts and materials constituting Rubycon products and to all manufacturing processes for such products.

Packaging materials for products, as well as sub-materials shall also be included herein.

### 3. Definitions

In this Specification, the following terms shall have the meaning as defined below:

#### (1) Prohibited Substances

Substances that should never be used in parts and materials

#### (2) Abolished Substances

Substances total abolition of which is to be promoted by Rubycon

For these substances, Rubycon and suppliers shall consult with each other to form a reduction/total abolition plan to the specified date and shall perform total abolition based on such plan.

As for special applications for which no substitute technology is currently available, exceptions shall be provided on the conditions that such substances shall be used under control.

#### (3) Plastic material

Organic polymer materials that can be formed by heat forming Included Rubber and ink

#### (4) Emission regulation

The substance which has concentration regulation in a closed space

#### (5) Restricted substances

The substance which is restricted to be in the product for specific customer of Rubycon

#### (6) Managed substances

The chemical substances that need grasp of the absence/presence of each substance in parts and materials, its content, purpose, and where it is contained, etc.

#### (7) Homogeneous material

The homogeneous material refers to the material that cannot be disassembled mechanically into different materials.

The contained concentration refers to the concentration expressed by the mass of homogeneous material placed in the denominator position.

	Part	Homogeneous material
Example 1	Lead wire terminal	"aluminum tab", "iron core wire", "copper plating layer", "tin plating layer", etc.
Example 2	Plastic coating case	"aluminum case", "coating resin", etc.
Example 3	Sleeve	"tube", "ink", etc.

### 4. Control Criteria for Prohibited and Abolished Substances

#### 4.1 List of Prohibited and Abolished Substances

The list of prohibited and abolished substances is given in Table 1 and Table 2

#### 4.2 Analysis method

The recommended analysis method for 10 substances prohibited by RoHS directive shall conform to IEC 62321 or derive equivalent results.

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5. Confirmation of analysis data

Amount of **10** substances prohibited by RoHS directive should be confirmed that the threshold values are met by submitting precise analysis data once a year. Amount of other substances shall be confirmed below the threshold values specified in the detail specifications by the non-use certificates and composition table or SDS. The non-use certificate shall be resubmitted when detail specification is revised to confirm that the threshold values are met.

If there is a change in the content of the composition table or SDS as amended by laws and regulations, submit the latest version.

6. "Revision date"

We added the "Revision date" after published date of "The list of prohibited and abolished substances" in order to establish relations between "The list of prohibited and abolished substances" and Technical Documents (Material Standard).

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Table-1 Prohibited Substances  
Substances that should never be used in parts and materials.

No.	Substance Name *1)	CAS No.	Criteria/threshold levels	Reference of laws/regulations *2)
1	Cadmium and its compounds	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 100ppm (0.01wt%) is prohibited. (Except RoHS exemption) < Controlled value >5ppm in plastic materials 20ppm in solder 75ppm in metals	[G], [H], [K]
2	Lead and its compounds	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited. (Except RoHS exemption) < Controlled value >100ppm in plastic materials 500ppm in solder 800ppm in component solder 800ppm in metals	[G], [H], [K]
3	mercury and its compounds	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited. (Except RoHS exemption) < Controlled value >100ppm	[G], [H], [K]
4	Chromium[VI] compounds	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited. (Except RoHS exemption) < Controlled value >100ppm	[G], [H]
5	PBBs	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited. (Except RoHS exemption) <Controlled value>100ppm	[A], [G], [K]
6	PBDEs	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited. (Except RoHS exemption) < Controlled value >100ppm	[A], [G], [K]
7	Di(2-ethylhexyl)phthalate (DEHP) [Bis(2-ethylhexyl)phthalate]	117-81-7	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited In case where: parts/materials are specified by law or regulation; parts/materials are specified by the customer, etc. Date to prohibit is from <a href="#">July 22, 2018</a> .	[G], [K], [M]
8	Butyl benzyl phthalate (BBP) [Benzyl butyl phthalate]	85-68-7	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited In case where: parts/materials are specified by law or regulation; parts/materials are specified by the customer, etc. Date to prohibit is from <a href="#">July 22, 2018</a> .	[G], [K], [M]
9	Di butyl phthalate (DBP)	84-74-2	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited In case where: parts/materials are specified by law or regulation; parts/materials are specified by the customer, etc. Date to prohibit is from <a href="#">July 22, 2018</a> .	[G], [K], [M]
10	Diisobutyl phthalate (DIBP)	84-69-5	Intentional use prohibited. Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited.	[G], [M]
11	Asbestos	[ Table-1a ]	Intentional use prohibited.	[B], [K]
12	Yellow phosphorus	7723-14-0	Intentional use prohibited.	[B]
13	Bis(chloromethyl)ether	542-88-1	Intentional use prohibited.	[B]

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14	4-Aminodiphenyl and its salts	(Group)	Intentional use prohibited.	[B], [K]
15	4-Nitrobiphenyl and its salts	(Group)	Intentional use prohibited.	[B], [K]
16	Benzidine and its salts	(Group)	Intentional use prohibited.	[B], [K]
17	$\beta$ -Nahthylamine and its salts	(Group)	Intentional use prohibited.	[B], [K]
18	Aldrin	309-00-2	Intentional use prohibited.	[A]
19	Endrin	72-20-8	Intentional use prohibited.	[A]
20	Chlordanes	(Group)	Intentional use prohibited.	[A]
21	Dieldrin	60-57-1	Intentional use prohibited.	[A]
22	Hexachlorobenzene	118-74-1	Intentional use prohibited.	[A]
23	Polychlorinated naphthalene ( 1 or more Chlorine atoms)	(Group)	Intentional use prohibited.	[A], [R]
24	DDT	50-29-3	Intentional use prohibited.	[A]
25	Polychlorinated biphenyls (PCBs) and specific substitutes.	[ Table-1b ]	[ Table-1b ]	[A], [K]
26	2,4,6-tri-tert-butylphenol	732-26-3	Intentional use prohibited.	[A]
27	1,4-Benzendiamine,N,N-bis(methylphenyl)-	27417-40-9	Intentional use prohibited.	[A]
28	1,4-Benzendiamine,N,N-bis(dimethylphenyl)-	28726-30-9	Intentional use prohibited.	[A]
29	1,4-Benzendiamine,N-methylphenyl-N-dimethylphenyl-	70290-05-0	Intentional use prohibited.	[A]
30	Ozone Depleting Substances (ODS)	[ Table-1c ]	Intentional use prohibited.	[C]
31	1,2-Dichloroethane	107-06-2	Intentional use prohibited.	
32	1,1-Dichloroethylene; Vinylidene chloride	75-35-4	Intentional use prohibited.	
33	1,2-Dichloroethylene cis-1,2-Dichloroethylene trans-1,2-Dichloroethylene	540-59-0 156-59-2 156-60-5	Intentional use prohibited.	
34	1,3-Dichloropropene	542-75-6	Intentional use prohibited.	
35	1,1,2-Trichloroethane	79-00-5	Intentional use prohibited.	
36	Benzene	71-43-2	Intentional use prohibited.	[B], [K]
37	Mirex	2385-85-5	Intentional use prohibited.	[A]
38	Beryllium and its compounds	(Group)	Inclusion in homogenous material in excess of 1000ppm (0.1wt%) is prohibited. [Exemption] Beryllium copper alloy of Spring material, alloy for electrical contact.	
39	Arsenic and its inorganic compounds	(Group)	Intentional use prohibited. [Exemption] Semiconductor compounds containing an arsenic constituent; Copper foil bonding on printed circuit boards.	[K]
40	Azo compounds	[ Table-1d ]	Inclusion as specified amine (table-1a) in excess of 30mg/kg (30ppm) is prohibited. Regulated items: Textile and leather articles which may come into direct and prolonged contact with the human skin.	[K], [N]
41	Dioxin	(Group)	Intentional use prohibited.	[F]
42	Chloroethylene; Vinyl chloride	75-01-4	Intentional use prohibited. Does not apply to monomer residue in polyvinylchloride (PVC).	[K]
43	Chloromethylmethyle ether	107-30-2	Intentional use prohibited.	
44	Benzotrichloride [benzylidene trichloride]	98-07-7	Intentional use prohibited.	
45	TBBP-A-bis	21850-44-2	Intentional use prohibited.	Rubycon policy
46	Sodium Azide	26628-22-8	Intentional use prohibited.	Customer requirement
47	PCT:Polychlorinated Terphenyl	(Group)	Intentional use prohibited. Inclusion in homogenous material in excess of 50ppm (0.005wt%) is prohibited.	[K]
48	2,2,2-Trichloro-1,1-bis(4-chlorophenyl)ethanol	115-32-2	Intentional use prohibited.	[A]
49	Hexachlorobuta-1,3-diene	87-68-3	Intentional use prohibited.	[A]
50	Heptachlor	76-44-8	Intentional use prohibited.	[A]
51	Bistributyltinoxide	56-35-9	Intentional use prohibited.	[A], [K]
52	Toxaphen	8001-35-2	Intentional use prohibited.	[A]

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53	Radioactive Substances		Intentional use prohibited.	[E]
54	Short Chain Chlorinated paraffins	(Group)	Intentional use prohibited.	
55	2-(2'-Hydroxy-3',5'-di-tert-butylphenyl)benzotriazole)	3846-71-7	Intentional use prohibited.	[A]
56	Perfluorooctance sulfonates	(Group)	Intentional use prohibited.	[A], [K]
57	Cobalt dichloride	7646-79-9	Intentional use prohibited.	[K]
58	Dimethyl Fumarate	624-49-7	Inclusion in a material in excess of 0.1ppm is prohibited.	[K]
59	HFCs	(Group)	Intentional use prohibited.	
60	PFCs	(Group)	Intentional use prohibited.	
61	Hexabromocyclododecane (HBCDD)	[Table-1e]	Intentional use prohibited. Inclusion in product (parts) in excess of 100ppm (0.01wt%) is prohibited.	[A], [M], [R]
62	PFOSE	307-35-7	Intentional use prohibited.	[A]
63	Pentachlorobenzene	608-93-5	Intentional use prohibited.	[A]
64	$\alpha$ -Hexachlorocyclohexane	319-84-6	Intentional use prohibited.	[A]
65	$\beta$ -Hexachlorocyclohexane	319-85-7	Intentional use prohibited.	[A]
66	$\gamma$ -Hexachlorocyclohexane	58-89-9	Intentional use prohibited.	[A]
67	Chlordecone	143-50-0	Intentional use prohibited.	[A]
68	Tri-substituted organostannic compounds (including TBT, TPT)	(Group)	Intentional use prohibited. Inclusion as a tin in materials in excess of 0.1wt% (1000ppm) is prohibited.	[K]
69	Formaldehyde(monomer)	50-00-0	Apply only to emission from products. The concentration the substance in the air is 0.1ppm or less in air tight room)	[O]
70	Tris (2-chloroethyl) phosphate (TCEP)	115-96-8	Inclusion in product (parts) in excess of 1000ppm (0.1wt%) is prohibited.	[M], [S]
71	Tris(2-chloro-1methyl) phosphate (TCPP)	13674-84-5	Inclusion in product (parts) in excess of 1000ppm (0.1wt%) is prohibited.	[S], Customer requirement
72	Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)	13674-87-8	Inclusion in product (parts) in excess of 1000ppm (0.1wt%) is prohibited.	[S], Customer requirement
73	Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA	[Table-1f]	Inclusion in product (parts) in excess of 1000ppm (0.1wt%) is prohibited.	[P]
74	Endosulfan (Technical endosulfan and its related isomers)	115-29-7 959-98-8 33213-65-9	Intentional use prohibited.	[A]
75	Polycyclic aromatic hydrocarbons [PAHs]	[Table-1g]	Intentional use prohibited. Regulated Items : Rubber or plastic components that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity.	[K]
76	Dibutyltin (DBT) compounds	(Group)	Inclusion as a tin in homogeneous materials in excess of 1000ppm is prohibited.	[K]
77	Benzenamine, N-phenyl-, reaction products with styrene and 2,4,4-trimethylpentene (BNST)	68921-45-9	Intentional use prohibited. Exemption : Additive in rubber, except in tires.	[Q]
78	Pentachlorophenol(PCP) and individual salts and esters of PCP	(Group)	Intentional use prohibited.	[A]

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Table-1a Asbestos

Substances Name	CAS No.
Asbestos	1332-21-4
Chrysotile	12001-29-5
Crocidolite	12001-28-4
Amosite	12172-73-5
Anthophyllite	77536-67-5
Tremolite	77536-68-6
Actinolite	77536-66-4

Table-1b Polychlorinated biphenyls (PCBs) and specific substitutes

Substances Name	CAS No.	Criteria/threshold levels
Polychlorinated biphenyls (All isomers and homologs)	1336-36-3	Intentional use prohibited. Inclusion in a material in excess of 50ppm is prohibited.
Monomethyl-tetrachloro-diphenyl methane (Ugilec141)(*)	76253-60-6	Intentional use prohibited.
Monomethyl-dichloro-diphenyl methane (Ugilec 121, Ugilec21) (*)	81161-70-8	Intentional use prohibited.
Monomethyl-dibromo-diphenyl methane (DBBT) (*)	99688-47-8	Intentional use prohibited.

Note : The substances list above that are suffixed with (\*) are specified alternatives of PCB defined in REACH Regulation Restriction List.

Table-1c Ozone Depleting Substances (ODS)

Substances Name	CAS No.	Montreal Protocol
CFCs	several	annex A group I annex B group I
Halons	several	annex A group II
Tetrachloromethane; Carbon tetrachloride	56-23-5	annex B group II
1,1,1-Trichloroethane	71-55-6	annex B group III
HCFCs	several	annex C group I
HBFCs	several	annex C group II
Bromo(chloro)methane	74-97-5	annex C group III
Bromomethane; Methyl bromide	74-83-9	annex E group I

Table-1d Amines to be never generated upon decomposition of azo compounds

Substance Name	CAS No.
o-anisidine	90-04-0
2-naphthylamine	91-59-8
3,3'-dichlorobenzidine	91-94-1
4-aminobiphenyl	92-67-1
benzidine	92-87-5
o-toluidine	95-53-4
4-chloro-2-methylaniline	95-69-2
2,4-toluediamine	95-80-7
o-aminoazotoluene	97-56-3
5-nitro-o-toluidine	99-55-8
3,3'-dichloro-4,4'-diaminodiphenylmethane	101-14-4
4,4'-methylenedianiline	101-77-9
4,4'-diaminodiphenylether	101-80-4
p-chloroaniline	106-47-8
o-dianisidine and its salts	119-90-4
3,3'-dimethylbenzidine	119-93-7
2-methoxy-5-methylaniline	120-71-8
2,4,5-trimethylaniline	137-17-7
4,4'-diaminodiphenylsulfide	139-65-1
2,4-diaminoanisole	615-05-4
4,4'-diamino-3,3'-dimetyldiphenylmethane	838-88-0
4-aminoazobenzene	60-09-3

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Table-1e Hexabromocyclododecane [HBCDD]

Substance Name	CAS No.
Hexabromocyclododecane	25637-99-4
	4736-49-6
	65701-47-5
	138257-17-7
	138257-18-8
	138257-19-9
	169102-57-2
	678970-15-5
	678970-16-6
678970-17-7	
1,2,5,6,9,10- Hexabromocyclododecane	3194-55-6
Alpha-hexabromocyclododecane	134237-50-6
Beta-hexabromocyclododecane	134237-51-7
Gamma-hexabromocyclododecane	134237-52-8

Table-1f Perfluorooctanoic acid (PFOA) and individual salts and esters of PFOA

Substance Name	CAS No.
Perfluorooctanoic acid (PFOA)	335-67-1
Ammonium salt of Perfluorooctanoic acid	3825-26-1
Sodium salt of Perfluorooctanoic acid	335-95-5
Potassium salt of Perfluorooctanoic acid	2395-00-8
Silver(+1) salt of Perfluorooctanoic acid	335-93-3
Perfluorooctanoyl fluoride	335-66-0
Methyl perfluorooctanoate	376-27-2
Ethyl perfluorooctanoate	3108-24-5

Table-1g Polycyclic aromatic hydrocarbons [PAHs]

Substance Name	CAS No.
Benzo[a]pyrene	50-32-8
Benzo[e]pyrene	192-97-2
Benzo[a]anthracene	56-55-3
Chrysene	218-01-9
Benzo[b]fluoranthene	205-99-2
Benzo[j]fluoranthene	205-82-3
Benzo[k]fluoranthene	207-08-9
Dibenz[a,h]anthracene	53-70-3

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Table-2 Abolished Substances

Substances total abolition of which is be promoted by Rubycon.  
 For these substances, Rubycon and suppliers shall consult with each other to form a reduction/total abolition plan to the specified date and shall perform total abolition based on such plan.  
 As for special applications for which no substitute technology is currently available, exceptions shall be provided on the condition that such substances shall be used under control.

No.	Substance Name *1)	CAS No.	Criteria/threshold levels	Date to prohibit the delivery to Rubycon	Reference of laws/regulations *2)
1	poly vinyl chloride	9002-86-2	Intentional use prohibited.	Prohibition	Customer requirement
			Exemptions: In case where: materials are specified by law or regulation; materials are specified by the customer, etc.	N/A (Report use/content)	
2	Tetrachloroethylene	127-18-4	Intentional addition prohibited to products/parts.		Customer requirement
3	Trichloroethylene	79-01-6	Intentional addition prohibited to products/parts.		[M] Customer requirement
4	Phthalates	Table-2a	Table-2a	Table-2a	[K], [M]
5	Natural rubber		Intentional use prohibited in toys and parts of toys.	Prohibition	Customer requirement
			[Exemption] Other than toys	N/A	
6	Diocetyl tin (DOT) compounds	(Group)	Inclusion as a tin in homogeneous materials in excess of 1000ppm is prohibited. Regulated items: Textile, leather products or their parts.	Prohibition	[K].
			Other than the regulated items	N/A (Report use/content)	
7	Dichloromethane (methylene chloride)	75-09-2	Intentional addition prohibited to products/parts.		

Table-2a Phthalates

Substance Name *1)	CAS No.	Criteria/threshold levels	Date to prohibit the delivery to Rubycon	Reference of laws/regulations *2)
Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	Intentional use prohibited. Inclusion in a material in excess of 1000ppm is prohibited. Regulated items: toys and childcare articles.	Prohibition	[K]
		Other than the regulated items	N/A (Report use/content)	
Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	Intentional use prohibited. Inclusion in a material in excess of 1000ppm is prohibited. Regulated items: toys and childcare articles.	Prohibition	[K]
		Other than the regulated items	N/A (Report use/content)	
Di-n-octyl phthalate (DNOP)	117-84-0	Intentional use prohibited. Inclusion in a material in excess of 1000ppm is prohibited. Regulated items: toys and childcare articles.	Prohibition	[K]
		Other than the regulated items	N/A(Report use/content)	

Table-3 Restricted Substances

The substance which is restricted to be in the product for specific customer of Rubycon.

No.	Substance Name *1)	CAS No.	Criteria/threshold levels	Reference of laws/regulations *2)
1	Methyl alcohol; (methanol)	67-56-1	Prohibit intentional addition	Customer requirement



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Table- 4 Judgment standard for packaging materials

Substances Name	Threshold Limit Value
Cadmium	The total allowable concentration of four heavy metals shall be less than 100ppm. Less than 5ppm is determined as an allowable cadmium concentration in a plastic (including rubber) part.
Lead	
Total chromium (including chromium[VI])	
Mercury and its compounds	

\*1) The substances in this specification are illustrative only, not all the substances and its alias name are listed.

\*2) Major Referenced Laws/ Regulations

symbol	Laws and regulations (examples)
[A]	Chemical Substances Control Law (Japanese law)
[B]	Industrial safety and health act (Japanese law)
[C]	Act for Protection of the Ozone Layer through Regulation of Designated Substances (Japanese law)
[D]	
[E]	Nuclear power plant regulation (Japanese law)
[F]	Act on special measure against Dioxins, including items of Stockholm convention on persistent organic pollutants (Japanese law)
[G]	EU. RoHS Directive 2011/65/EU.
[H]	EU. ELV Directive 2000/53/EC.
[K]	EU. REACH Regulation (EC) No.1907/2006 Annex XVII (Restriction).
[M]	EU. REACH Regulation (EC) No.1907/2006 Annex XIV (Authorization).
[N]	Cabinet order for daily use (Germany)
[O]	Chemicals Prohibition Ordinance. (Germany)
[P]	Norway. Product Regulations
[Q]	Canada. Prohibition of Certain Toxic Substances Regulations, 2012 (SOR/2012-285)
[R]	EU. POPs Regulation
[S]	<a href="#">United States Vermont Laws 2014 Act85</a>

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Table- 5-1 Managed Substances (JIG and own management substances)

The chemical substances that need grasp of the absence/presence of each substance in parts and materials, its content, purpose, and where it is contained, etc.

The substances in Table1(Prohibited (P)) and Table2(Abolished(A)) are included.

No.	JIG No.	Substance/Category	CAS No.	Threshold level (reporting level)	Rubycon Rank
1	A05	Cadmium/cadmium compounds	-	Cadmium content of 0.01% by weight in homogeneous material (100 ppm) In cases of a battery, cadmium of 0.001% by weight in the battery (10 ppm)	P
2	A07	Chromium VI compounds	-	Hexavalent chromium of 0.1% by weight in homogeneous material (1000 ppm)	P
3	A09	Lead/lead compounds	-	Lead content of 0.1% by weight in homogeneous material (1000 ppm) Describe the following threshold levels if the product is for any of the below uses: • In cases of a battery, lead content of 0.004% by weight of the battery (40 ppm) • In cases of coating on a toy or a product for children or surface coating, lead content of 0.009% by weight per coated surface (90 ppm) • In cases of a consumer product mainly for children of twelve years of age and under, lead content of 0.01% by weight in the product (100 ppm) • In cases of an electric wire/cable or a cord insulated with thermosetting/thermoplastic resin, lead content of 0.03% by weight per surface coating (300 ppm)	P
4	A10	Mercury/mercury compounds	-	Intentionally added or 0.1%(1000ppm) by weight of mercury in homogeneous material In cases of a battery, intentionally added or 0.0001% by weight (1ppm) of mercury in of the battery	P
5	A11	Nickel	7440-02-0	Intentionally added, for use consisting of long-term contact with skin.	
6	A17	Tributyl tin oxide (TBTO)	56-35-9	Intentionally added	P
7	A28	Tri-substituted organostannic compounds	-	0.1% by weight in material as intentionally added content or as a tin element	P
8	A23	Dibutyltin (DBT) compounds	-	0.1% by weight of tin in a material (1000ppm)	A
9	A24	Diocetyl tin (DOT) compounds	-	0.1% by weight (1 000 ppm) of tin in a material for the following purposes • a cloth/leather product that is supposed to be in contact with skin • Dual humoral room temperature curing molding kit (RTV-2 sealant molding kit)	A
10	A19	Beryllium oxide (BeO)	1304-56-9	above 0.1% beryllium oxide by weight per surveying unit.	P
11	B02	Polybrominated biphenyls (PBBs)	-	0.1% by weight (1 000 ppm) of homogeneous materials	P
12	B03	Polybrominated diphenylethers (PBDEs)	-	0.1% by weight (1000 ppm) in the intentionally added amount or the homogeneous material	P
13	B08	Brominated flame retardants (other than PBBs, PBDEs, or HBCDD)	-	• Total bromine content of 0.09% by weight (900 ppm) for the use of printed wiring board laminate • 0.1% total bromine content by weight (1 000 ppm) in the plastic material except printed wiring board laminate.	
14	B18	Chlorinated flame retardants	-	• Total chlorine content of 0.09% by weight (900 ppm) for the use of printed wiring board laminate • 0.1% total chlorine content by weight (1 000 ppm) in the plastic material except printed wiring board laminate.	
15	B05	Polychlorinated biphenyls (PCBs) and specific substitutes	-	Intentionally added	P
16	B15	Polychlorinated terphenyls (PCTs)	-	0.005% by weight in the material	P
17	B06	Polychlorinated naphthalenes ( 1 or more Chlorine atoms)	-	Threshold level (reporting level): Intentionally added	P
18	B12	Perchlorates	-	0.000006% by weight (0.006 ppm) per surveying unit.	

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19	B13	Perfluorooctane sulfonate (PFOS)	-	The amount intentionally added, or 0.1% by weight in the material	P
20	B10	Fluorinated greenhouse gases (PFC, SF6, HFC)	-	Intentionally added	P
21	B19	Polyvinyl chloride (PVC) & PVC Copolymers	-	•0.1% total chlorine content by weight (1 000 ppm) in the plastic material except printed wiring board laminate.	A
22	C01	Asbestos	-	Intentionally added	P
23	C02	Azocolourants and azodyes which form certain aromatic amines	-	A cloth/leather product with azo dye/pigment of 0.003% by weight of a survey unit (30ppm)	P
24	C04	Ozone depleting substances	-	Intentionally added	P
25	C06	Radioactive substances	-	Intentionally added	P
26	C07	Formaldehyde	50-00-0	• A composite wood product having formaldehyde intentionally added • A textile product with formaldehyde of 0.0075% by weight per textile product (75ppm)	P
27	C08	Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis-(1,1-dimethylethyl)	3846-71-7	Intentionally added	P
28	C09	Di(2-ethylhexyl)phthalate (DEHP)	117-81-7	0.1% by weight (1000 ppm) in plasticized material for use as toy or child care article	P
		Di butyl phthalate (DBP)	84-74-2		
		Butyl benzyl phthalate (BBP) [Benzyl butyl phthalate]	85-68-7		
29	C10	Diisononyl phthalate (DINP)	28553-12-0 68515-48-0	0.1% by weight (1000 ppm) in plasticized material for use as a children's toy that can be placed in a child's mouth or child care article.	A
		Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1		
		Di-n-octyl phthalate (DNOP)	117-84-0		
30	C11	Di methyl fumarate	624-49-7	0.00001% by weight (0.1 ppm) in a material	P
31	C47	Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1	Intentionally added	A
32	C48	Di-n-hexyl phthalate (DnHP)	84-75-3	Intentionally added	
33		Red phosphorus	7723-14-0	Intentionally added	

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Table- 5-2 Managed Substances (List of SVHC investigation )

The chemical substances that need grasp of the absence/presence of each substance in parts and materials, its content, purpose, and where it is contained, etc.

The substances in Table1 (Prohibited(P)) and Table 2(Abolished(A)) are included.

Threshold level (reporting level):	In case where an individual substance(SVHC) exceeds 0.1wt% of survey unit
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No.	Substance/Category	CAS No.	Rubycon Rank
[ Included on 28 Oct. 2008 in the Candidate List ]			
1	Anthracene	120-12-7	
2	4,4'-Diaminodiphenylmethane (MDA)	101-77-9	
3	Dibutyl phthalate (DBP)	84-74-2	P
4	Cobalt dichloride	7646-79-9	P
5	Diarsenic pentoxide	1303-28-2	P
6	Diarsenic trioxide	1327-53-3	P
7	Sodium dichromate	7789-12-0 10588-01-9	P
8	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2	
9	Bis (2-ethylhexyl)phthalate (DEHP)	117-81-7	P
10	Hexabromocyclododecane (HBCDD) and all major diastereoisomers: Alpha-hexabromocyclododecane Beta-hexabromocyclododecane Gamma-hexabromocyclododecane	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8	P
11	Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	P
12	Bis (tributyltin) oxide (TBTO)	56-35-9	P
13	Lead hydrogen arsenate	7784-40-9	P
14	Benzyl butyl phthalate (BBP)	85-68-7	P
15	Triethyl arsenate	15606-95-8	P
[ Included on 13 January 2010 & 30 Mar. 2010 in the Candidate List ]			
16	Anthracene oil	90640-80-5	
17	Anthracene oil, anthracene paste, distn. lights	91995-17-4	
18	Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	
19	Anthracene oil, anthracene-low	90640-82-7	
20	Anthracene oil, anthracene paste	90640-81-6	
21	Pitch, coal tar, high temp.	65996-93-2	
22	2,4-Dinitrotoluene	121-14-2	
23	Diisobutyl phthalate (DIBP)	84-69-5	P
24	Lead chromate	7758-97-6	P
25	Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8	P
26	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	P
27	Tris (2-chloroethyl) phosphate	115-96-8	P
28	Acrylamide	79-06-1	
[ Included on 18 June 2010 in the Candidate List ]			
29	Trichloroethylene	79-01-6	P
30	Boric acid	10043-35-3 11113-50-1	
31	Disodium tetraborate, anhydrous	1330-43-4 12179-04-3 1303-96-4	
32	Tetraboron disodium heptaoxide, hydrate	12267-73-1	
33	Sodium chromate	7775-11-3	P

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34	Potassium chromate	7789-00-6	P
35	Ammonium dichromate	7789-09-5	P
36	Potassium dichromate	7778-50-9	P
[ Included on 15 December 2010 in the Candidate List ]			
37	Cobalt(II) sulphate	10124-43-3	
38	Cobalt(II) dinitrate	10141-05-6	
39	Cobalt(II) carbonate	513-79-1	
40	Cobalt(II) diacetate	71-48-7	
41	2-Methoxyethanol	109-86-4	
42	2-Ethoxyethanol	110-80-5	
43	Chromium trioxide	1333-82-0	P
44	Acids generated from chromium trioxide and their oligomers. Names of the acids and their oligomers: Chromic acid, Dichromic acid, Oligomers of chromic acid and dichromic acid.	7738-94-5 13530-68-2 -	P
[ Included on 20 June 2011 in the Candidate List ]			
45	2-Ethoxyethyl acetate	111-15-9	
46	Strontium chromate	7789-06-2	P
47	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	
48	Hydrazine	302-01-2 7803-57-8	
49	1-Methyl-2-pyrrolidone	872-50-4	
50	1,2,3-Trichloropropane	96-18-4	
51	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	
[ Included on 19 December 2011 in the Candidate List ]			
52	Lead styphnate	15245-44-0	P
53	Lead diazide, Lead azide	13424-46-9	P
54	Lead dipicrate	6477-64-1	P
55	Phenolphthalein	77-09-8	
56	2,2'-dichloro-4,4'-methylenedianiline	101-14-4	
57	N,N-dimethylacetamide	127-19-5	
58	Trilead diarsenate	3687-31-8	P
59	Calcium arsenate	7778-44-1	P
60	Arsenic acid	7778-39-4	P
61	Bis(2-methoxyethyl) ether	111-96-6	
62	1,2-dichloroethane	107-06-2	
63	4-(1,1,3,3-tetramethylbutyl)phenol	140-66-9	
64	2-Methoxyaniline; o-Anisidine	90-04-0	
65	Bis(2-methoxyethyl) phthalate	117-82-8	
66	Formaldehyde, oligomeric reaction products with aniline	25214-70-4	
67	Zirconia Aluminosilicate Refractory Ceramic Fibres <i>are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium, silicon and zirconium are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm). c) alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight</i>	-	

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68	Aluminosilicate Refractory Ceramic Fibres <i>are fibres covered by index number 650-017-00-8 in Annex VI, part 3, table 3.1 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, and fulfil the three following conditions: a) oxides of aluminium and silicon are the main components present (in the fibres) within variable concentration ranges b) fibres have a length weighted geometric mean diameter less two standard geometric errors of 6 or less micrometres (µm) c) alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content less or equal to 18% by weight</i>	-	
69	Pentazinc chromate octahydroxide	49663-84-5	P
70	Potassium hydroxyoctaoxodizincatedichromate	11103-86-9	P
71	Dichromium tris(chromate)	24613-89-6	P
[ Included on 18 June 2012 in the Candidate List ]			
72	1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	
73	1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	
74	Diboron trioxide	1303-86-2	
75	Formamide	75-12-7	
76	Lead(II) bis(methanesulfonate)	17570-76-2	P
77	1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	2451-62-9	
78	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	
79	4,4'-bis(dimethylamino)benzophenone (Michler's ketone)	90-94-8	
80	N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	
81	[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Blue 26) <i>[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]</i>	2580-56-5	
82	[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride (C.I. Basic Violet 3) <i>[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]</i>	548-62-9	
83	4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol <i>[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]</i>	561-41-1	
84	α,α-Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) <i>[with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]</i>	6786-83-0	
[ Included on 19 December 2012 in the Candidate List ]			
85	Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1163-19-5	P
86	Pentacosfluorotridecanoic acid	72629-94-8	
87	Tricosfluorododecanoic acid	307-55-1	
88	Henicosfluoroundecanoic acid	2058-94-8	
89	Heptacosfluorotetradecanoic acid	376-06-7	
90	Diazene-1,2-dicarboxamide (C,C'-azodi(formamide))	123-77-3	
91	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	

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92	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	
93	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]	-	
94	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated  [covering well-defined substances and UVCB substances, polymers and homologues]	-	
95	Methoxyacetic acid	625-45-6	
96	N,N-dimethylformamide	68-12-2	
97	Dibutyltin dichloride (DBTC)	683-18-1	P
98	Lead monoxide (Lead oxide)	1317-36-8	P
99	Orange lead (Lead tetroxide)	1314-41-6	P
100	Lead bis(tetrafluoroborate)	13814-96-5	P
101	Trilead bis(carbonate)dihydroxide	1319-46-6	P
102	Lead titanium trioxide	12060-00-3	P
103	Lead titanium zirconium oxide	12626-81-2	P
104	Silicic acid, lead salt	11120-22-2	P
105	Silicic acid (H <sub>2</sub> Si <sub>2</sub> O <sub>5</sub> ), 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	P
106	1-bromopropane (n-propyl bromide)	106-94-5	
107	Methyloxirane (Propylene oxide)	75-56-9	
108	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear	84777-06-0	
109	Diisopentylphthalate	605-50-5	
110	N-pentyl-isopentylphthalate	776297-69-9	
111	1,2-Diethoxyethane	629-14-1	
112	Acetic acid, lead salt, basic	51404-69-4	P
113	Lead oxide sulfate	12036-76-9	P
114	[Phthalato(2-)]dioxotrilead	69011-06-9	P
115	Dioxobis(stearato)trilead	12578-12-0	P
116	Fatty acids, C16-18, lead salts	91031-62-8	P
117	Lead cyanamide	20837-86-9	P
118	Lead dinitrate	10099-74-8	P
119	Pentalead tetraoxide sulphate	12065-90-6	P
120	Pyrochlore, antimony lead yellow	8012-00-8	P
121	Sulfurous acid, lead salt, dibasic	62229-08-7	P
122	Tetraethyllead	78-00-2	P
123	Tetralead trioxide sulphate	12202-17-4	P
124	Trilead dioxide phosphonate	12141-20-7	P
125	Furan	110-00-9	
126	Diethyl sulphate	64-67-5	
127	Dimethyl sulphate	77-78-1	
128	3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine	143860-04-2	
129	Dinoseb (6-sec-butyl-2,4-dinitrophenol)	88-85-7	

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130	4,4'-methylenedi- <i>o</i> -toluidine	838-88-0	P
131	4,4'-oxydianiline and its salts	101-80-4	P
132	4-aminoazobenzene	60-09-3	P
133	4-methyl- <i>m</i> -phenylenediamine (toluene-2,4-diamine)	95-80-7	P
134	6-methoxy- <i>m</i> -toluidine (p-cresidine)	120-71-8	P
135	Biphenyl-4-ylamine	92-67-1	P
136	<i>o</i> -aminoazotoluene	97-56-3	P
137	<i>o</i> -Toluidine	95-53-4	P
138	N-methylacetamide	79-16-3	
[ Included on 20 June 2013 in the Candidate List ]			
139	Cadmium	7440-43-9	P
140	Cadmium oxide	1306-19-0	P
141	Ammonium pentadecafluorooctanoate (APFO)	3825-26-1	P
142	Pentadecafluorooctanoic acid (PFOA)	335-67-1	P
143	Dipentyl phthalate (DPP)	131-18-0	
144	4-Nonylphenol, branched and linear, ethoxylated <i>[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]</i>	-	
[ Included on 16 December 2013 in the Candidate List ]			
145	Cadmium sulphide	1306-23-6	P
146	Disodium 3,3'-[[1,1'-biphenyl]-4,4'-diylbis(azo)] bis(4-aminonaphthalene-1-sulphonate) (C.I. Direct Red 28)	573-58-0	P
147	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	P
148	Dihexyl phthalate	84-75-3	
149	Imidazolidine-2-thione; (2-imidazoline-2-thiol)	96-45-7	
150	Lead di(acetate)	301-04-2	P
151	Trixylyl phosphate	25155-23-1	
[ Included on 16 June 2014 in the Candidate List ]			
152	Cadmium chloride	10108-64-2	P
153	1,2-Benzenedicarboxylic acid, dihexyl ester, branched and linear	68515-50-4	
154	Sodium peroxometaborate	7632-04-4	
155	Sodium perborate; perboric acid, sodium salt	-	
[ Included on 17 December 2014 in the Candidate List ]			
156	Cadmium fluoride	7790-79-6	P
157	Cadmium sulphate	10124-36-4; 31119-53-6	P
158	2-benzotriazol-2-yl-4,6-di- <i>tert</i> -butylphenol (UV-320)	3846-71-7	P
159	2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	
160	2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE)	15571-58-1	A
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-s tannatetradecanoate (reaction mass of DOTE and MOTE)		A



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[ Included on 15 June 2015 in the Candidate List ]			
162	5-sec-butyl-2-( 2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane[1],5-sec-butyl-2-(4,6-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane [2] [covering any of the individual stereoisomers of [1] and [2] or any combination thereof]	-	
163	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	
[ Included on 17 December 2015 in the Candidate List ]			
164	Nitrobenzene	98-95-3	
165	2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	3864-99-1	
166	2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenol (UV-350)	36437-37-3	
167	1,3-propanesultone	1120-71-4	
168	Perfluorononan-1-oic acid(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-heptadecafluorononanoicacid and its sodium and ammonium salts	375-95-1 21049-39-8 4149-60-4	
[ Included on 20 June 2016 in the Candidate List ]			
169	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	P
[ Included on 12 January 2017 in the Candidate List ]			
170	4,4'-isopropylidenediphenol (bisphenol A)	80-05-7	
171	Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts	3108-42-7 335-76-2 3830-45-3	
172	p-(1,1-dimethylpropyl)phenol	80-46-6	
173	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]	-	
[ Included on 7 July 2017 in the Candidate List ]			
174	Perfluorohexane-1-sulphonic acid and its salts (PFHxS)	-	
[ Included on 15 January 2018 in the Candidate List ]			
175	Chrysene	218-01-9	P
176	Benz[a]anthracene	56-55-3	P
177	Cadmium nitrate	10325-94-7	P
178	Cadmium hydroxide	21041-95-2	P
179	Cadmium carbonate	513-78-0	P
180	Dodecachloropentacyclo[12.2.1.1 <sup>6,9</sup> .0 <sup>2,13</sup> .0 <sup>5,10</sup> ]octadeca-7,15-diene ("Dechlorane Plus™") [covering any of its individual anti- and syn-isomers or any combination thereof]	-	
181	Reaction products of 1,3,4-thiadiazolidine-2,5-dithione, formaldehyde and 4-heptylphenol, branched and linear (RP-HP) [with ≥0.1% w/w 4-heptylphenol, branched and linear]	-	

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SVHC SVHC is Substances of Very High Concern, It means that the substances are listed to Candidate.

Disclaimer: The substances in this specification are illustrative only, not all the substances and its alias name are listed.

In the case of any variance between Japanese and English text, the Japanese shall prevail.

## Supplement

### Major Changes from [RUB-34] to [RUB-35]

Page	items	Details of revision
3/18	Table-1	Changed date to prohibit of prohibited substance No. 7, 8, 9 from January 1, 2018 to July 22, 2018
5/18	Table-1	Added prohibited substance No.71 Tris(2-chloro-1methyl) phosphate (TCPP)
5/18	Table-1	Added prohibited substance No.72 Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)
17/18	Table-5-2	In light of new SVHC, Added 8 substances to “Managed Substances”. (No.174 – No.181)