Dynabook Inc.

Guidelines for Green Procurement
Ver.11

Contents

I. Green procurement

1. Objective

Dynabook Inc. Group (hereafter, we) promote procurement from suppliers that aggressively promote activities for environmental conservation. The objective of these Guidelines are to procure articles with a lower environmental impact, in respect of procurement of parts, materials, units, products and sub-materials (hereafter, articles to be supplied) for products.

2. Requirements to suppliers

2.1 Suppliers' activities for environmental conservation

We request every supplier to undertake proactive activities for environmental conservation.
We prioritize suppliers who perform such proactive activities in our procurement.
Suppliers are expected to perform such environmental activities as

1) Formulating environmental policy
2) Establishing and maintaining a system for environmental conservation
3) Training and monitoring of system performance

Suppliers are also expected to promote activities for energy saving, 3R (reduce, reuse and recycle), and preservation of biodiversity such as tree planting.

In order to understand suppliers' activities for environmental conservation, we want to investigate the points below, and ask for your understanding and support.

1) Document-based inquiry into supplier's environmental activities
2) On-site investigation of supplier's environmental activities

2.2 Control of environment-related substances for articles to be supplied

Suppliers are required to comply with Chapter II. "Environment-related substances control criteria" of these Guidelines and supply articles with a lower environmental impact.
In order to ensure this, suppliers should carry out the following items.

1) Make every supporting organization and your suppliers understand the requirements stated in these Guidelines.
2) Realize the requirements described in our purchase specifications and drawings.
3) Reply to our inquiries about control of environment-related substances.
   Although inquiries depend on types of articles to be supplied and necessity, the major ones are:
   i) Confirmation of no inclusion of prohibited substances, using "Use/Non-use Declaration of Environment-related Substances"
   ii) Inquiries about content values of EU REACH SVHC
   iii) Requests to provide sample test result
   iv) Other necessary inquiries to confirm supplier's performance
4) Obtain necessary information from your suppliers as base data for your reply.
5) Perform sample tests or obtain sample test result from your suppliers if these are an effective means to realize our requirements.
6) Investigate your suppliers' control systems (including supplier audit).

II. Environment-related substances control criteria

1. Scope

The scope is environment-related substances in the articles to be supplied to us for production of our products.

"Our products" include products supplied by ODM or OEM vendors, resale products of other company's brand, spare parts and repaired articles.

"Our products" also include products made by or sold by Group Companies of Dynabook Inc. that have a capital relationship with us and to which you directly supply articles.

2. Definitions

(1) Environment-related substances

Substances considered to have an environmental impact and specified in these Guidelines.

(2) Substances whose use is prohibited

Environment-related substances whose use in articles to be supplied is prohibited by law, regulation or these Guidelines.

(3) Substances whose use is to be reduced or substituted

Environment-related substances specified in these Guidelines whose use in the articles to be supplied should be reduced or substituted.

(4) Intentional inclusion

Inclusion that cannot appropriately be regarded as impurities, as defined in (5). For example, use of a substance as a necessary ingredient in order to obtain functionality or performance.

(5) Not intended inclusion (impurities)

Inclusion which can be regarded as resulting from the natural environment or that is the result of a chemical reaction and that cannot be removed by a refining process with existing technology.

(6) Homogeneous material

The term "homogeneous material" means a material that cannot be mechanically disjointed into different materials.

The term "homogeneous" means "of uniform composition throughout", so examples of "homogeneous materials" are plastics, ceramics, glass, metals, alloys, paper, board, resins and coatings.

The term "mechanically disjointed" means that the materials can be, in principle, separated by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes.

Example:

- A plastic cover is homogeneous material if it consisted exclusively of one type of plastic that was not coated with or had attached to it (or inside it) any other kinds of materials.
- An electric cable that consisted of material wires surrounded by non-metallic insulation materials is not homogeneous material because mechanical processes could separate the different materials.
- A semi-conductor package contains many homogeneous materials, which include the plastic molding material, the tin-electroplating coatings on the lead frame, the lead frame alloy and the gold-bonding wires.

Note: In case of chromate treatment, homogeneous material of the coating is defined as only chromate conversion coating, not including any base metal.

3. Requirements for environment-related substances control for articles to be supplied

3.1 Substances whose inclusion in articles to be supplied is prohibited

For substances listed in Table 1 following inclusion is prohibited.

1) Intentional inclusion

2) Inclusion exceeding the maximum tolerance concentration

The maximum tolerance concentration for each substance is defined on Table 3.

Regarding substances for which maximum tolerance concentrations are not defined, impurities must be well controlled. At least concentration of each substance in components of the article must not exceed 0.1wt% (1000ppm).

However, for uses listed in Table 2, neither inclusion 1) nor inclusion 2) is prohibited (exempted uses).

Moreover, in some cases such as use for spare parts, we might procure parts, unit or materials which include the prohibited substances. In these cases, please follow the instructions of the person in charge.

Please be aware that some uses of the substances whose use is to be reduced or substituted, as described in section 3.2, are prohibited. Please refer notes of Table 7.

Table 1 Substances whose inclusion in articles to be supplied is prohibited

Ref. No.	Substance	Timing of prohibition for articles
1	Cadmium and its compounds	Previously prohibited
2	Hexavalent chromium compounds	Previously prohibited
3	Lead and its compounds	Previously prohibited
4	Mercury and its compounds	Previously prohibited
5	Polybrominated biphenyls (PBBs)	Previously prohibited
6	Polybrominated diphenyl ethers (PBDEs)	Previously prohibited
7	Bis(tributyltin)=oxide (TBTO)	Previously prohibited
8	Polychlorinatedbiphenyls (PCBs) / Polychlorinated terphenyls (PCTs)	Previously prohibited
9	Polychloronaphtalenes (with 3 or more chlorine atoms)	Previously prohibited
10	Short Chain Chlorinated Paraffins (with carbon length 10 through 13)	Previously prohibited
11	Asbestos	Previously prohibited
12	Azo pigments and dyes (only those able to form certain amines and are directly and continuously applied to the human body)	Previously prohibited
13	Ozone depleting substances (ODS)	Previously prohibited
14	Tri-substituted organostannic compounds (Tributyltins (TBTs) , Tripheniltins (TPTs) , etc. ,except TBTO(Ref. No.7))	Previously prohibited
15	Radioactive Substances	Previously prohibited
16	Aldrin	Previously prohibited
17	Endrin	Previously prohibited
18	Yellow Phosphorus	Previously prohibited
19	Chlordanes	Previously prohibited
20	N,N'-ditolyl-p-phenylenediamin, N-tolyl-N'-xyly l-p-phenylenediamine or N,N'-dixylyl-p-phenylene diamine	Previously prohibited
21	Dioxins	Previously prohibited
22	DDT	Previously prohibited
23	Dieldrin	Previously prohibited
24	Toxaphene	Previously prohibited
25	2,4,6-Tri-t-Butylphenol	Previously prohibited
26	4-Nitrobiphenyl and its salt	Previously prohibited
27	Bis(chloromethyl)ether	Previously prohibited
28	Hexachlorobenzene	Previously prohibited
29	Benzene	Previously prohibited
30	Mirex	Previously prohibited
31	2,2,2-trichloro-1,1-bis(4-chlorophenyl)ethanol (synonyms: Kelthane, Dicofol)	Previously prohibited
32	Hexachlorobutadiene (synonyms: Hexachloro-1,3-butadiene, Hexachlorobuta-1,3-diene)	Previously prohibited

33	2-benzotriazol-2-yl-4,6-ditert-butyl-phenol	Previously prohibited
34	Perfluorooctane Sulfonate(PFOS) and its Salts (chemical formula: $C_8F_{17}SO_2X$, X is OH group, metal salts, halide, amide and other derivatives including polymers)	Previously prohibited
35	Dimethylfumarate(DMF)	Previously prohibited
36	Dibutyltin (DBT) compounds	Previously prohibited
37	Perfluorooctane sulfonyl fluoride (PFOSF)	Previously prohibited
38	Pentachlorobenzene (PeCB)	Previously prohibited
39	Alpha-Hexachlorocyclohexane	Previously prohibited
40	Beta-Hexachlorocyclohexane	Previously prohibited
41	Gamma-Hexachlorocyclohexane	Previously prohibited
42	Clordecone	Previously prohibited
43	Carcinogenic substances (Group1 and Group2A: evaluated by IARC) for personal computers and tablet Inclusion in the plastic parts not less than 25g of case and housing	Previously prohibited
44	Beryllium and its compounds for personal computers and tablet Inclusion in any article to be supplied except followings 1) Additives in the gold bonding wire of semi-conductors 2) Inclusion not more than 2.0wt% in copper-beryllium alloys used as spring parts.	Previously prohibited
45	Certain flame retardants for personal computers and tablet Inclusion of more than 0.1wt% of following flame retardants in the plastic parts more than 25g: Flame retardants that are classified under EU 67/548/EEC and 2009/2/EC as R40, R45, R46, R48, R50, R51, R52, R53, R60, R61 and any combination of these. R40 flame retardants in the external cable (both AC and DC) are exempted from this requirement.	Previously prohibited
46	6,9-Methano-2,4,3-benzodioxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide (also known as Benzoepin or Endosulfan)	Previously prohibited
47	Hexabromocyclododecane (also known as HBCD)	Previously prohibited
48	Certain polycyclic aromatic hydrocarbons (PAHs) Articles shall not be placed on the market for supply to the general public, if any of their 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, under normal or reasonably foreseeable conditions of use, contain more than 1 mg/kg (0,0001 % by weight of this component) of any of the listed PAHs. (refer to Table 6, Annex XVII, EU REACH)	Previously prohibited
49	Bis (2-ethylhexyl)phthalate (DEHP)	Previously prohibited
50	Dibutyl phthalate (DBP)	Previously prohibited
51	Butyl benzyl phthalate (BBP)	Previously prohibited
52	Diisobutyl phthalate (DIBP)	Previously prohibited
53	Red phosphorus (as flame retardant in resin) (*1)	Previously prohibited

(*) Ref. No.: Reference number to the attached table “Details of substances (Typical examples)”.Please refer the attached table for details.

(*1) Restriction of red phosphorus is not based on environmental viewpoint.

Table 2 Exempted uses (Allowable uses)

Substance	Exempted uses (Allowable uses)	Expiration date	RoHS exemption No.
Cadmium and its compounds	Cadmium and its compounds in electrical contacts		8(b)
	Cadmium in filter glasses and glasses used for reflectance standards		13(b)
	Cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses		21
Lead and its compounds	Lead in glass of cathode ray tubes		5(a)
	Lead in glass of fluorescent tubes not exceeding 0.2 % by weight		5(b)
	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35 % lead by weight		6(a)
	Lead as an alloying element in aluminum containing up to 0.4 % lead by weight		6(b)
	Copper alloy containing up to 4 % lead by weight		6(c)
	Lead in high melting temperature type solders (i.e. lead- based alloys containing 85 % by weight or more lead)		7(a)
	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission, and network management for telecommunications		7(b)

	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		7(c)-I
	Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher		7(c)-II
	Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors		7(c)-IV,
	Lead in white glasses used for optical applications		13(a)
	Lead in filter glasses and glasses used for reflectance standards Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages Lead halide as radiant agent in high intensity discharge (HID) lamps used for professional reprography applications Lead in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glasses Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC		13(b) 15 17 21 24 29
	Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)		31
Mercury and its compounds PFOS and its salts	Mercury in single capped (compact) fluorescent lamps not exceeding (per burner): a) For general lighting purposes < 30 W: 2.5 mg b) For general lighting purposes ≥ 30 W and < 50 W: 3.5mg c) For general lighting purposes ≥ 50 W and < 150 W: 5 mg d) For general lighting purposes ≥ 150 W: 15 mg e) For general lighting purposes with circular or square structural shape and tube diameter ≤ 17 mm: 7mg f) For special purposes: 5 mg		1(a)-(f)
	Mercury in double-capped linear fluorescent lamps for general lighting purposes not exceeding (per lamp): a) Tri-band phosphor with normal lifetime and a tube diameter < 9 mm (e.g. T2): 4mg b) Tri-band phosphor with normal lifetime and a tube diameter ≥ 9 mm and ≤ 17 mm (e.g. T5): 3mg c) Tri-band phosphor with normal lifetime and a tube diameter > 17 mm and ≤ 28 mm (e.g. T8): 3.5mg d) Tri-band phosphor with normal lifetime and a tube diameter > 28 mm (e.g. T12): 3.5mg e) Tri-band phosphor with long lifetime (≥ 25 000 h): 5mg		2(a)(1)-(5)
	Mercury in fluorescent lamps other than listed in (H1), (H2) or (H4) not exceeding 15mg (per lamp) excluding linear halophosphate lamps with tube > 28 mm (e.g. T10 and T12).		2(b)(2)-(4)
	Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp): a) Short length (≤ 500 mm) 3.5mg b) Medium length (> 500 mm and ≤ 1 500 mm) 5mg c) Long length (> 1 500 mm) 13mg		3(a)-(c)
	In other low pressure discharge lamps not exceeding 15 mg (per lamp)		4(a)
	Mercury in other discharge lamps for special purposes not specifically mentioned in the Annex of COMMISSION DECISION 2010/571/EU		4(f)
PFOS and its salts	・ Photoresists or anti reflective coatings for photolithography processes, ・ Photographic coatings applied to films, papers, or printing plates, ・ Mist suppressants for non-decorative hard chromium (VI) plating and wetting agents for use in controlled electroplating systems where the amount of PFOS released into the environment is minimized, by fully applying relevant best available techniques.		-

Table 3 Maximum tolerance concentration as impurities

Substance	Uses and regal requirements	Maximum tolerance concentration (*1)(*2)
Cadmium and its compounds (*4)	Use other than described bellow. Under the EU RoHS Directive.	0.01wt% (100ppm)
	Use restricted by EU chemical substances restriction (REACH ANNEX XVII (former: EU Directive 76/769/EEC and its amendments.) - Resin, paint, ink, etc	0.0075wt% (75ppm)
Hexavalent chromium compounds (*4)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
Lead and its compounds (*4)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
Mercury and its compounds (*4)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
PBB	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
PBDE	All uses. Under the RoHS Directive.	0.1wt% (1000ppm) (*3)
PFOS and its salts	Coated materials (use restricted by EU chemical substances restriction (EU Directive 76/769/EEC and its amendments.))	less than 1 ug/m^2
	Others (same as above)	less than 0.1wt% (1000ppm)
Certain polycyclic aromatic hydrocarbons (PAHs) (*5)	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	0.0001wt% (1ppm)
Bis (2-ethylhexyl)phthalate (DEHP)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
Dibutyl phthalate (DBP)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
Butyl benzyl phthalate (BBP)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
Diisobutyl phthalate (DIBP)	All uses. Under the RoHS Directive.	0.1wt% (1000ppm)
Red Phosphorus	Inclusion to all the supplies except metal	0.1wt% (1000ppm) (*6)

(*1) Maximum tolerance concentration as impurities of each substance is defined as the weight percentage in homogeneous materials.

(*2) Maximum tolerance concentration of heavy metal compounds is defined as the weight percentage of metal element in homogeneous materials.
e.g.) In the case of cadmium and its compound the concentration relates to the cadmium element.

(*3) Maximum tolerance concentration of PBDE is defined as the accumulated concentration of all PBDEs, including Deca-BDE, in the homogenous materials.

(*4) Refer to Table 9, regarding maximum tolerance concentration in packaging materials.

(*5) Substances described in the Annex XVII of the EU REACH (refer to Table 6)

(*6) Maximum tolerance concentration of red phosphorous included intentionally is defined as a concentration of total phosphorous element.

Table 4 List of specific amines (generated by the decomposition of one or more azo group)

Substance	Chemical formula	CAS No.
4-amino azobenzene	$C_{12}H_{11}N_3$	60-09-3
o-anisidine	C_7H_9NO	90-04-0
2-naphthylamine (β-Naphthylamine)	$C_{10}H_9N$	91-59-8
3, 3'-dichlorobensidine	$C_{12}H_{10}Cl_2N_2$	91-94-1
Biphenyl-4-ylamine	$C_{12}H_{11}N$	92-67-1
Benzidine	$C_{12}H_{12}N_2$	92-87-5
o-toluidine	C_7H_9N	95-53-4
4-chloro- o-toluidine	C_7H_8ClN	95-69-2
2, 4-toluenediamine	$C_7H_{10}N_2$	95-80-7
o-aminoazotoluene	$C_{14}H_{15}N_3$	97-56-3
5- nitro-o-toluidine	$C_7H_8N_2O_2$	99-55-8
3, 3'-dichloro-4, 4'-diaminodiphenylmethane	$C_{13}H_{12}Cl_2N_2$	101-14-4
4, 4'-methylenedianiline	$C_{13}H_{14}N_2$	101-77-9

4, 4'-diaminodiphenylether	$C_{12}H_{12}N_2O$	101-80-4
p-chloroaniline	C_6H_6ClN	106-47-8
3, 3'-dimethoxybenzidine	$C_{14}H_{16}N_2O_2$	119-90-4
3, 3'-dimethylbenzidine	$C_{14}H_{16}N_2$	119-93-7
2-methoxy-5-methylaniline	$C_8H_{11}NO$	120-71-8
2, 4, 5-trimethylaniline	$C_9H_{13}N$	137-17-7
4, 4'-Thiodianiline	$C_{12}H_{12}N_2S$	139-65-1
2, 4'-methoxy-m-Phenylenediamine	$C_7H_{10}N_2O$	615-05-4
4, 4'-methylenedi- o -toluidine	$C_{15}H_{18}N_2$	838-88-0

Table 5 Ozone depleting substances (ODS)

CFC	(Defined in Appendix A group I of Montreal Protocol)
Halon	(Defined in Appendix A group II of Montreal Protocol)
CFC other than above	(Defined in Appendix B group I of Montreal Protocol)
Carbon tetrachloride	(Defined in Appendix B group II of Montreal Protocol)
1, 1, 1-Trichroloethane	(Defined in Appendix B group III of Montreal Protocol)
HCFC	(Defined in Appendix C group I of Montreal Protocol))
HBFC	(Defined in Appendix C group II of Montreal Protocol))
Bromochloromethane	(Defined in Appendix C group III of Montreal Protocol)
Methylbromide	(Defined in Appendix E of Montreal Protocol)

Table6 Certain polycyclic aromatic hydrocarbons (PAHs)

Uses and groups of substances in the Annex XVII of the EU REACH are in scope.

Substance	Chemical formula	CAS No.
Benzo[a]pyrene (BaP)	$C_{20}H_{12}$	50-32-8
Benzo[e]pyrene (BeP)	$C_{20}H_{12}$	192-97-2
Benzo[a]anthracene (BaA)	$C_{18}H_{12}$	56-55-3
Chrysen (CHR)	$C_{18}H_{12}$	218-01-9
Benzo[b]fluoranthene (BbFA)	$C_{20}H_{12}$	205-99-2
Benzo[j]fluoranthene (BjFA)	$C_{20}H_{12}$	205-82-3
Benzo[k]fluoranthene (BkFA)	$C_{20}H_{12}$	207-08-9
Dibenzo[a,h]anthracene (DBAhA)	$C_{22}H_{14}$	53-70-3

3.2 Substances whose inclusion in articles to be supplied is subject to reduction and substitution

The volume of substances listed in Table 7 should be reduced in articles to be supplied, or should be replaced with other substances. We give priority to articles that do not include these substances, if commercially available.

Please be aware that some of these substances used for specified application are prohibited. Refer to the notes of Table 7.

Table 7 Substances whose inclusion in articles to be supplied is subject to reduction and substitution

Ref. No.	Substance
54	Polyvinyl chloride (PVC)
55	Tetrabromo-bisphenol A (TBBPA)
56	Brominated flame retardant (except PBBs(Ref. No.5), PBDEs(Ref. No.6) and TBBPA(Ref. No.44))
57	Antimony and its compounds
58	Arsenic and its compounds
59	Beryllium and its compounds (Except Ref. No.44)
60	Bismuth and its compounds
61	Nickel and its compounds (*1)
62	Some Phthalic Esters (Except DEHP(Ref. No.49), DBP(Ref. No.50), BBP(Ref. No.51), DIBP(Ref. No.52))
63	Selenium and its compounds
64	Zinc and its compounds
65	Chlorinated paraffin (except some short chain chlorinated paraffins (Ref. No.10))
66	Chromium compounds (III)

67	Cyanogen compounds
68	Perfluorocarbon (PFC)
69	Hydrogenerated fluorocarbon (HFC)
70	Hydrogenerated organic compounds (except those listed in Table1 (Ref. No.5, No.6, etc.)
71	Manganese and its compounds
72	Organic Tin Compounds (except TBTO (Ref. No.7), Tri-substituted organostatic compounds (Ref. No.14) and DBT (Ref. No.36))
73	Sulfur hexafluoride (SF6)
74	Anthracene
75	4,4'- Diaminodiphenylmethane
76	Cobalt dichloride
77	Cobalt(II) sulphate
78	Cobalt(II) dinitrate
79	Cobalt(II) carbonate
80	Cobalt(II) diacetate
81	5-tert-butyl-2,4,6-trinitro-m-xylene(synonym: musk xylene)
82	2,4-Dinitrotoluene
83	Coal tar pitch, high temperature
84	Aluminosilicate, Refractory Ceramic Fibres
85	Zirconia Aluminosilicate, Refractory Ceramic Fibres
86	Acrylamide
87	Tris(2-chloroethyl)phosphate
88	Trichloroethylene
89	Boric acid
90	Disodium tetraborate, anhydrous
91	Tetraboron disodium heptaoxide, hydrate
92	2-Methoxyethanol
93	2-Ethoxyethanol

(*1) The use of nickel and its compounds for the area expected for direct and prolonged skin contact is prohibited.
(*2) Ref. No.: Reference number to the attached table “Details of substances (typical examples) referred in these Guidelines”. Please refer the attached table for details.

4. Requirements for packaging materials

All packaging materials to be supplied, not limited to individual packaging, must fulfill the requirements of section 3. “Requirements for environment-related substances control for articles to be supplied”, and also must not include substances listed in Table 8. For substance where a maximum tolerance concentration is defined, any inclusion exceeding that concentration is prohibited. For substances that do not define a maximum tolerance concentration, intentional inclusion is prohibited.

Table 8 Substances whose inclusion in the packaging to be supplied is prohibited

Ref. No.	Substance	Restriction	Maximum tolerance concentration (*1)(*2)
1-4	Lead, cadmium, mercury, hexavalent chromium and their compounds	Inclusion of cadmium, hexavalent chromium, lead, mercury and their compounds in the packaging including ink in printing when the accumulated concentration of these substances at any portion of the packaging exceeds the maximum tolerance concentration.	0.01wt% (100ppm)
54	Polyvinyl chloride (PVC)	Intentional inclusion of PVC in the packaging	- (Intentional inclusion)
-	Halogen compounds	Halogen compounds use in the plastic of packaging for personal computers : fluorine (F), chlorine (Cl), bromine (Br), iodine (I) and astatine (At)	- (Intentional inclusion)

(*1) Maximum tolerance concentration is defined as the weight percentage in homogeneous materials.
(*2) Maximum tolerance concentration of metal compounds is defined as the weight percentage of metal element in homogeneous materials.

5. Requirements for batteries

Any type of batteries or accumulators, whether stand-alone or installed in units or products, must comply with the EU Battery Directives (2006/66/EC and 2013/56/EU). The requirements include prohibition of inclusion exceeding the maximum tolerance concentration described on Table 9.

The area other than cells of the battery device, such as battery pack, must fulfill not only requirements described in this section but also those described in section 3. "Requirements for environment-related substances control for articles to be supplied".

Table 9 Substances whose inclusion in the battery is prohibited

Ref. No.	Substance	Restriction	Maximum tolerance concentration (*1)	Timing of application
1	Cadmium and its compounds	Portable batteries or accumulators that contain cadmium and its compounds exceeding the maximum tolerance concentration.	0.002wt% (20ppm)	Previously applied
4	Mercury and its compounds	All batteries or accumulators, except button batteries, that contain mercury and its compounds exceeding the maximum tolerance concentration.	0.0005wt% (5ppm)	Previously applied
		Button batteries that contain mercury and its compounds exceeding the maximum tolerance concentration.	2wt% (20000ppm)	By September 30, 2015
			Prohibition of intentional addition	from October 1, 2015 onward

(*1) Maximum tolerance concentration is defined as the weight percentage of metal element in the battery.

6. Requirements for US-EPEAT restriction

Addition to the requirements that are described before, requirements for US-EPEAT restriction that is described on Table10 must be fulfilled..

Table10 Restriction by US-EPEAT

Substance	Contents of restriction
Cadmium	Inclusion ratio in homogeneous material is less than or equal to 0.005wt% (50ppm) (excluding recycled content)
Hexavalent chromium	Inclusion ratio in homogeneous material is less than or equal to 0.05wt% (500ppm) (Exempted use in (excluding recycled content)
Lead	Inclusion ratio in total weight of object item is less than or equal to 0.005wt% (50ppm) (*1) (Exempted use in EU-RoHS directives is applicable,)
Polyvinyl chloride (PVC)	PVC is not included in plastic parts that weigh 25g or more (excluding cable or internal wiring)

(*1) Object items for Lead are Liquid crystal in LCD unit, Housing of LCD unit, Printed circuit board in LCD unit, AC adapter and AC cable.

Attached Table:

Details of substances (typical examples) referred in these Guidelines

Attached Table: Details of substances (typical examples) referred in these guidelines

No.	CAS	Chemical substance name	Chemical formula
1		**Cadmium and its compounds**	
	7440-43-9	Cadmium	Cd
	1306-19-0	Cadmium oxide	CdO
	1306-23-6	Cadmium sulfide	CdS
	10108-64-2	Cadmium chloride	$CdCl_2$
	10124-36-4	Cadmium sulfate	$CdSO_4$
	-	Other cadmium compounds	-
2		**Hexavalent chromium compounds**	
	7789-12-0 10588-01-9	Sodium dichromate	$Na_2Cr_2O_7$
	1333-82-0	Chromium(VI) oxide	CrO_3
	13765-19-0	Calcium chromate	$CaCrO_4$
	7758-97-6	Lead (II) chromate	$PbCrO_4$
	7778-50-9	Potassium dichromate	$K_2Cr_2O_7$
	7789-00-6	Potassium chromate	K_2CrO_4
	-	Other hexavalent chromium compounds	
3		**Lead and its compounds**	
	7439-92-1	Lead	Pb
	598-63-0	Lead(II) carbonate	$PbCO_3$
	1309-60-0	Lead(IV) oxide	PbO_2
	1314-41-6	Lead(II,IV) oxide	Pb_3O_4
	1314-87-0	Lead(II) sulfide	PbS
	1317-36-8	Lead(II) oxide	PbO
	1319-46-6	Lead(II) carbonate basic	$2PbCO_3.Pb(OH)_2$
	1344-36-1	Lead Hydroxidcarbonate	$2PbCO_3.Pb(OH)_2$
	7446-14-2	Lead(II) sulfate	$PbSO_4$
	7446-27-7	Lead(II) phosphate	$Pb_3(PO_4)_2$
	7758-97-6	Lead(II) chromate	$PbCrO_4$
	12060-00-3	Lead(II) titanate	$PbTiO_3$
	15739-80-7	Lead sulfate,sulphuric acid,lead salt	$PbSO_4$
	12202-17-4	Lead sulfate,tribasic	$PbSO_4 \cdot H_2O$
	1072-35-1	Lead stearate	$Pb(C_{17}H_{35}COO)_2$
	56189-09-4	Lead stearate,dibasic	$2PbO \cdot Pb(C_{17}H_{35}COO)_2$
	12656-85-8	Lead chromate molybdate sulfate red (C.I. Pigment Red 104)	$PbCrO_4$, $PbMoO_4$, $PbSO_4$
	1344-37-2	Lead sulfochromate yellow (C.I. Pigment Yellow 34)	$Pb(Cr,S)O_4$
	-	Other lead compounds	-
4		**Mercury and its compounds.**	
	7439-97-6	Mercury	Hg
	7487-94-7	Mercury(II) chloride	$HgCl_2$
	21908-53-2	Mercury(II) oxide	HgO
	-	Other mercury compounds	-
5		**Polybrominated biphenyls (PBBs)**	
	59536-65-1	Polybrominated biphenyls	$C_{12}HxBr_{(10-x)}$
	-	Other polybrominated biphenyls	-
6		**Polybrominated diphenyl ethers (PBDEs)**	
	1163-19-5	Polybrominated diphenyl ethers	$C_{12}HxBr_{(10-x)}O$
	-	Other Polybrominated diphenyl ethers	-
7		**Bis(tributyltin)oxide**	
	56-35-9	Bis(Tri-n-butyltin)oxide	$O(Sn(C_4H_9)_3)_2$
8		**Polychlorinatedbiphenyls (PCBs)/ Polychlorinated terphenyls (PCTs)**	
	1336-36-3	PCB(Polychlorinated biphenyls)	$C_{12}HnCl_{(10}$-n) (n: 0-9)
	61788-33-8	PCT(Polychlorinated terphenyls)	$C_{18}HnCl_{(14-n)}$ (n: 0-13)-
	-	Other PCBs	-
9		**Polychlorinated naphthalene(Cl≥3)**	

	70776-03-3	Polychlorinated naphthalene(Cl≥3)	-
	-	Other Polychlorinated naphthalene(Cl≥3)	-
10		**Short chain chlorinated paraffins**	
	85535-84-8	Short chain chlorinated paraffins(C10-13)	$CnH_{2n+2-x}Clx$ (n:10-13)
11		**Asbestos**	
	77536-66-4	Actinolite	$Ca_2(Mg,Fe)_5(Si_8O_{22})(OH)_2$
	12172-73-5	Amosite	$Fe_5Mg_2(Si_8O_{22})(OH)_2$
	77536-67-5	Anthophylite	$(Mg, Fe)_7Si_8O_{22}(OH)_2$
	12001-29-5	Chrysotile	$Mg_3(Si_2O_5)(OH)_4$
	12001-28-4	Crocidolite	$Na_2Fe^{2+}{}_3Fe^{3+}{}_2Si_8O_{22}(OH)_2$
	77536-68-6	Tremolite	$Ca_2Mg_5Si_8O_{22}(OH)_2$
	-	Other asbestos	-
12		**Azo pigments and dyes.（those able to form certain amines）**	
	60-09-3	4-Aminoazobenzene	$C_{12}H_{11}N_3$
	90-04-0	*o*-Anisidine	C_7H_9NO
	91-59-8	2-Naphthylamine (β-Naphthylamine)	$C_{10}H_9N$
	91-94-1	3,3'-Dichlorobenzidine	$C_{12}H_{10}C_{l2}N_2$
	92-67-1	4-Biphenylamine	$C_{12}H_{11}N$
	92-87-5	Benzidine	$C_{12}H_{12}N_2$
	95-53-4	*o*-Toluidine	C_7H_9N
	95-69-2	4-Chloro-*o*-toluidine	C_7H_8ClN
	95-80-7	2,4-Toluendiamine	$C_7H_{10}N_2$
	97-56-3	*o*-Aminoazotoluene	$C_{14}H_{15}N_3$
	99-55-8	5-Nitro-*o*-toluidine	$C_7H_8N_2O_2$
	101-14-4	3,3'-Dichloro-4,4'-diaminodiphenylmethan	$C_{13}H_{12}C_{l2}N_2$
	101-77-9	4,4'-Methylenedianiline	$C_{13}H_{14}N_2$
	101-80-4	4,4'-Diaminodiphenylether	$C_{12}H_{12}N_2O$
	106-47-8	p-Chloroaniline	C_6H_6ClN
	119-90-4	3.3’-Dimethoxybenzidine	$C_{14}H_{16}N_2O_2$
	119-93-7	3,3'-Dimethylbenzidine	$C_{14}H_{16}N_2$
	120-71-8	2-Methoxy-5-methylaniline	$C_8H_{11}NO$
	137-17-7	2,4,5-Trimethylaniline	$C_9H_{13}N$
	139-65-1	4,4'-Thiodianiline	$C_{12}H_{12}N_2S$
	615-05-4	4-Methoxy-m-phenylenediamine	$C_7H_{10}N_2O$
	838-88-0	4,4'-Diamino-3,3'-dimethyldiphenylmethane	$C_{15}H_{18}N_2$
13		**Ozone Depleting Substances**	
	75-69-4	CFC-11	$CFCl_3$
	75-71-8	CFC-12	CF_2Cl_2
	76-13-1	CFC-113	$C_2F_3Cl_3$
	76-14-2	CFC-114	$C_2F_4Cl_2$
	76-15-3	CFC-115	C_2F_5Cl
	353-59-3	Halon1211	CF_2BrCl
	75-63-8	Halon1301	CF_3Br
	124-73-2	Halon2402	$C_2F_4Br_2$
	75-72-9	CFC-13	CF_3Cl
	354-56-3	CFC-111	C_2FCl_5
	28605-74-5	CFC-112	$C_2F_2Cl_4$
	422-78-6	CFC-211	C_3FCl_7
	3182-26-1	CFC-212	$C_3F_2Cl_6$
	2354-06-5	CFC-213	$C_3F_3Cl_5$
	2268-46-4	CFC-214	$C_3F_4Cl_4$
	76-17-5	CFC-215	$C_3F_5Cl_3$
	661-97-2	CFC-216	$C_3F_6Cl_2$
	422-86-6	CFC-217	C_3F_7Cl
	56-23-5	Carbon tetrachloride	CCl_4
	71-55-6	1,1,1-Trichloroethane	$C_2H_3Cl_3$
	1868-53-7	Dibromofluoromethane	$CHFBr_2$
	1511-62-2	Bromodifluoromethane	CHF_2Br
	373-52-4	Bromofluoromethane	CH_2FBr
	306-80-9	Tetrabromofluoroethane	C_2HFBr_4

	-	Tribromodifluoroethane	$C_2HF_2Br_3$
	354-04-1	Dibromotrifluoroethane	$C_2HF_3Br_2$
	124-72-1	Bromotetrafluoroethane	C_2HF_4Br
	-	Tribromofluoroethane	$C_2H_2FBr_3$
	75-62-1	Dibromodifluoroethane	$C_2H_2F_2Br_2$
	421-06-7	Bromotrifluoroethane	$C_2H_2F_3Br_3$
	358-97-4	Dibromofluoroethane	$C_2H_3FBr_2$
	359-07-9	Bromodifluoroethane	$C_2H_3F_2Br$
	762-49-2	Bromofluoroethane	C_2H_4FBr
	-	Hexabromofluoropropane	C_3HFBr_6
	-	Pentabromodifluoropropane	$C_3HF_2Br_5$
	-	Tetrabromotrifluoropropane	$C_3HF_3Br_4$
	-	Tribromotetrafluoropropane	$C_3HF_4Br_3$
	431-78-7	Dibromopentafluoropropane	$C_3HF_5Br_2$
	2252-79-1	Bromohexafluoropropane	C_3HF_8Br
	-	Pentabromofluoropropane	$C_3H_2FBr_5$
	-	Tetrabromodifluoropropane	$C_3H_2F_2Br_4$
	-	Tribromotrifluoropropane	$C_3H_2F_3Br_3$
	-	Dibromotetrafluoropropane	$C_3H_2F_4Br_2$
	480-88-8	Bromopentafluoropropane	$C_3H_2F_5Br$
	-	Tetrabromofluoropropane	$C_3H_3FBr_4$
	70192-80-2	Tribromodifluoropropane	$C_3H_3F_2Br_3$
	70192-83-5	Dibromotrifluoropropane	$C_3H_3F_3Br_2$
	679-84-5	Bromotetrafluoropropane	$C_3H_3F_4Br$
	75372-14-4	Tribromofluoropropane	$C_3H_4FBr_3$
	460-25-3	Dibromodifluoropropane	$C_3H_4F_2Br_2$
	421-46-5	Bromotrifluoropropane	$C_3H_4F_3Br$
	51584-26-0	Dibromofluoropropane	$C_3H_5FBr_2$
	-	Bromodifluoropropane	$C_3H_5F_2Br$
	352-91-0	Bromofluoropropane	C_3H_6FBr
	74-97-5	Chlorobromomethane	CH_2BrCl
	74-83-9	Methylbromide	CH_3Br
	75-43-4	HCFC-21	$CHFCl_2$
	75-45-6	HCFC-22	CHF_2Cl
	593-70-4	HCFC-31	CH_2FCl
	134237-32-4	HCFC121	C_2HFCl_4
	41834-16-6	HCFC-122	$C_2HF_2Cl_3$
	34077-87-7	HCFC-123	$C_2HF_3Cl_2$
	306-83-2	HCFC-123	$CHCl_2CF_3$
	63938-10-3	HCFC-124	C_2HF_4Cl
	2837-89-0	HCFC-124	$CHFClCF_3$
	134237-34-6	HCFC-131	$C_2H_2FCl_3$
	25915-78-0	HCFC-132	$C_2H_2F_2Cl_2$
	75-88-7	HCFC-133	$C_2H_2F_3Cl$
	25167-88-8	HCFC-141	$C_2H_3FCl_2$
	1717-00-6	HCFC-141(b)	$C_2H_3FCl_2$
	25497-29-4	HCFC-142	$C_2H_3F_2Cl$
	75-68-3	HCFC-142(b)	CH_3CF_2Cl
	1615-75-4	HCFC-151	C_2H_4FCl
	134237-35-7	HCFC-221	C_3HFCl_6
	134237-36-8	HCFC-222	$C_3HF_2Cl_5$
	134237-37-9	HCFC-223	$C_3HF_3Cl_4$
	134237-38-0	HCFC-224	$C_2HF_4Cl_3$
	127564-92-5	HCFC-225	$C_3HF_5Cl_2$
	422-56-0	HCFC-225 ca	$CF_3CF_2CHCl_2$
	507-55-1	HCFC-225 cb	CF_2ClCF_2CHClF
	134308-72-8	HCFC-226	C_3HF_6Cl
	134190-48-0	HCFC-231	$C_3H_2FCl_5$
	134237-39-1	HCFC-232	$C_3H_2F_2Cl_4$
	134237-40-4	HCFC-233	$C_3H_2F_3Cl_3$
	127564-83-4	HCFC-234	$C_3H_2F_4Cl_2$

	134237-41-5	HCFC-235	$C_3H_2F_5Cl$
	134190-49-1	HCFC-241	$C_3H_3FCl_4$
	134237-42-6	HCFC-242	$C_3H_3F_2Cl_3$
	134237-43-7	HCFC-243	$C_3H_3F_3Cl_2$
	134190-50-4	HCFC-244	$C_3H_3F_4Cl$
	134190-51-5	HCFC-251	$C_3H_4FCl_3$
	134190-52-6	HCFC-252	$C_3H_4F_2Cl_2$
	134237-44-8	HCFC-253	$C_3H_4F_3Cl$
	134237-45-9	HCFC-261	$C_3H_5FCl_2$
	134190-53-7	HCFC-262	$C_3H_5F_2Cl$
	134190-54-8	HCFC-271	C_3H_6FCl
14		**Tri-substituted organostannic compounds (Tributyltin, Triphenyltin, etc. except TBTO(No.7))**	
	1803-12-9	Triphenyltin N,N'-dimethyldithiocarbamate	$(C_6H_5)_3Sn(CH_3)_2NCS_2$
	379-52-2	Triphenyltin fuloride	$(C_6H_5)_3SnF$
	900-95-8	Triphenyltin acetate	$(C_6H_5)_3SnOCOCH_3$
	639-58-7	Triphenyltin chloride	$(C_6H_5)_3SnCl$
	76-87-9	Triphenyltin hydroxide	$(C_6H_5)_3SnOH$
	47672-31-1	Triphenyltin fatty acid salts(C=9-11)	-
	7094-94-2	Triphenyltin chloroacetate	$(C_6H_5)_3SnOCOCH_2Cl$
	2155-70-6	Triphenyltin methacrylate	$(C_4H_9)_3SnC_4H_5O_2$
	6454-35-9	Bis(tributyltin)2,3-dibromosuccinate	$C_2H_2(COO)_2((C_4H_9)_3Sn)_2$
	1983-10-4	Tributyltin fluoride	$(C_4H_9)_3SnF$
	31732-71-5	Bis(tributyltin) 2,3-dibromosuccinate	$((C_4H_9)_3Sn)_2\ C_2H_2(Br)_2(COO)_2$
	56-36-0	Tributyltin acetate	$(C_4H_9)_3SnOCOCH_3$
	3090-36-6	Tributyltin laurate	$(C_4H_9)_3SnC_{12}H_{23}\ O_2$
	4782-29-0	Bis(tributyltin)phthalate	$(C_6H_4)(COO)_2((C_4H_9)_3Sn)_2$
	-	Copolymer of alkyl acrylate,methyl methacrylate and tributyltin methacrylate (alkyl;C=8)	-
	6517-25-5	Tributyltin sulfamate	$(C_4H_9)_3SnSO_3NH_2$
	14275-57-1	Bis(tributyltin)maleate	$C_2H_2(COO)_2((C_4H_9)_3Sn)_2$
	1461-22-9	tributyltin chloride	$(C_4H_9)_3SnCl$
	-	Mixture of tributyltin cyclopentane carboxylate and its analogs	-
	-	Mixture of tributyltin-1,2,3,4,4,a,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-1-phenanthren carboxylate and its analogs	-
	-	Other tri-substituted organostannic compounds	-
15		**Radioactive substances**	
	7440-61-1	Uranium	U
	7440-07-5	Plutonium	Pu
	10043-92-2	Radon	Rn
	7440-35-9	Americium	Am
	7440-29-1	Thorium	Th
	7440-46-2	Cesium	Cs
	7440-24-6	Strontium	Sr
	-	Other radioactive substances	-
16		**Aldrin**	
	309-00-2	Aldrin	$C_{12}H_8Cl_6$
17		**Endrin**	
	72-20-8	Endrin	$C_{12}H_8Cl_6O$
18		**Yellow Phosphorus**	
	12185-10-3	Yellow Phosphorus	P_4
19		**Chlordanes**	
	5566-34-7	Gamma-chlordane	$C_{10}H_6Cl_8$
	5103-74-2	Trans- chlordane	$C_{10}H_6Cl_8$
	5103-71-9	Cis- chlordane	$C_{10}H_6Cl_8$
	76-44-8	Heptachlor	$C_{10}H_5Cl_7$
	27304-13-8	Oxychlordane	$C_{10}H_4Cl_8O$

	39765-80-5	Trans-nonachlor	$C_{10}H_5Cl_9$
	5103-73-1	Cis-nonachlor	$C_{10}H_5Cl_9$
20		**N,N'-ditolyl-p-phenylenediamin, N-tolyl-N'-xyly l-p-phenylenediamine and N,N'-dixylyl-p-phenylenediamine**	
	27417-40-9	N,N'-ditolyl-p-phenylenediamin	-
	28726-30-9	N-Tolyl-N'-Xylyl-p-phenylenediamine	-
	70290-05-0	N,N'-dixylyl-p- phenylenediamine	-
21		**Dioxins**	
	-	Polychlorinated dibenzo-*p*-dioxin	-
	-	Polychlorinated dibenzofuran	-
	-	Co- PCBs	-
22	50-29-3	**DDT**	$C_{14}H_9Cl_5$
23	60-57-1	**Dieldrin**	$C_{12}H_8Cl_6O$
24	8001-35-2	**Toxaphene**	$C_{10}H_{10}Cl_8$
25	732-26-3	**2,4,6-Tri-t-butylphenol**	$C_{18}H_{30}O$
26		**4-Nitrodiphenyl and its salt**	
	92-93-3	4-Nitrodiphenyl	$C_{12}H_9NO_2$
27	542-88-1	**Bis(chloromethyl)ether**	$C_2H_4Cl_2O$
28	118-74-1	**Hexachlorobenzene**	C_6Cl_6
29	71-43-2	**Benzene**	C_6H_6
30	2385-85-5	**Mirex**	$C_{10}Cl_{12}$
31	115-32-2	**2,2,2-trichloro-1,1-bis(4-chlorophenyl)ethanol**	$C_{14}H_9C_{l5}O$
32	87-68-3	**Hexachlorobutadiene (Hexachloro-1,3-butadiene, Hexachlorobuta-1,3-diene)**	C_4Cl_6
33	3846-71-7	**2-benzotriazol-2-yl-4,6-di-tert-butyl-phenol**	$C_{20}H_{25}N_3O$
34		**Perfluorooctane Sulfonate(PFOS) and its salts**	$C_8F_{17}SO_2X$
	1763-23-1	Perfluorooctanesulfonic acid	$C_8HF_{17}O_3S$
	29081-56-9	Perfluorooctanesulfonate amine	$C_8F_{17}S\ O_3\ NH_4$
	70225-14-8	Bis(2-hydroxyethyl) ammonium perfluorooctanesulfonate	$C_{12}H_{12}F_{17}NO_5S$
	2795-39-3	Potassium perfluorooctanesulfonate	$C_8F_{17}KO_3S$
	29457-72-5	Lithium perfluorooctanesulfonate	$C_8F_{17}LIO_3S$
	-	Other perfluorooctane Sulfonate and its Salts	
35	624-49-7	**Dimethylfumarate(DMF)**	$C_6H_8O_4$
36		**Dibutyltin (DBT) compounds**	
	818-08-6	Dibutyltin oxide	$C_8H_{18}OSn$
	1067-33-0	Dibutyltin diacetate	$C_{12}H_{24}O_4Sn$
	77-58-7	Dibutyltin dilaurate	$C_{32}H_{64}O_4Sn$
	78-04-6	Dibutyltin maleate	$C_{12}H_{20}O_4Sn$
		Other dibutyltin compounds	
37	307-35-7	Perfluorooctane sulfonyl fluoride (PFOSF)	$C_8F_{17}SO_2F$
38	608-93-5	Pentachlorobenzene (PeCB)	C_6HCl_5
39	319-84-6	Alpha-Hexachlorocyclohexane	$C_6H_6Cl_6$
40	319-85-7	Beta-Hexachlorocyclohexane	$C_6H_6Cl_6$
41	58-89-9	Gamma-Hexachlorocyclohexane	$C_6H_6Cl_6$
42	143-50-0	Clordecone	$C_{10}Cl_{10}O$
43	-	Carcinogenic substances (Group1 and Group2A:evaluated by IARC)	-
44		**Beryllium and its compounds**	
59	7440-41-7	Beryllium	Be
	1304-56-9	Beryllium oxide	BeO
	-	Other Beryllium compounds	
46	115-29-7	6,9-Hethano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,8,9a-hexahydro-,3 -oxide (also known as Benzoepin or Endosulfan)	$C_9H_6Cl_6\ O_3S$
47	25637-99-4	Hexabromocyclododecane (also known as HBCD)	$C_{12}H_{18}Br_6$
48		**Certain Polycyclic aromatic hydrocarbon (PAHs)**	
	50-32-8	Benzo[a]pyrene (BaP)	$C_{20}H_{12}$
	192-97-2	Benzo[e]pyrene (BeP)	$C_{20}H_{12}$
	56-55-3	Benzo[a]anthracene (BaA)	$C_{18}H_{12}$

	218-01-9	Chrysen (CHR)	$C_{18}H_{12}$
	205-99-2	Benzo[b]fluoranthene (BbFA)	$C_{20}H_{12}$
	205-82-3	Benzo[j]fluoranthene (BjFA)	$C_{20}H_{12}$
	207-08-9	Benzo[k]fluoranthene (BkFA)	$C_{20}H_{12}$
	53-70-3	Dibenzo[a,h]anthracene (DBAhA)	$C_{22}H_{14}$
49	117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	$C_{24}H_{38}O_4$
50	84-74-2	Dibutyl Phthalate (DBP)	$C_{16}H_{22}O_4$
51	85-68-7	Butyl benzyl phthalate (BBP)	$C_{19}H_{20}O_4$
52	84-69-5	Diisobutyl phthalate (DIBP)	$C_{16}H_{22}O_4$
53	7723-14-0	Red phosphorus (flame retardant application in the resin)	P
54	9002-86-2	**Polyvinylchloride(PVC)**	$(CH_2CHCl)_n$
55		**Tetrabromo-bisphenol A(TBBPA,TBBA)**	
	79-94-7	Tetrabromo-bisphenol A	$C_{15}H_{12}Br_4O_2$
	30496-13-0	TBBA, unspecified	-
	40039-93-8	TBBA-epichlorhydrin oligomer	$(C_{15}H_{12}Br_4O_2.C_3H_5ClO)x$
	70682-74-5	TBBA-diglycidyl-ether oligomer	-
	28906-13-0	TBBA carbonate oligomer	$(C_{15}H_{12}Br_4O_2.CCl_2O)x$
	94334-64-2	TBBA carbonate oligomer,phenoxy end capped	$(C_7H_5O2)(C_{16}H_{10}Br_4O_3)x(C_6H_5O)$
	71342-77-3	TBBA carbonate oligomer,2,4,6-tribromo-phenolterminated	$(C_7H_2Br_3O_3)(C_{16}H_{10}Br_4O_3)n(C_6H_2Br_3)$
	32844-27-2	TBBA-bisphenol A-phosgene polymer	$(C_{15}H_{16}O_2.C_{15}H_{12}Br_4O_2.CCl_2O)x$
	21850-44-2	TBBA-(2,3-dibromo-propyl-ether)	$C_{21}H_{20}Br_8O_2$
	4162-45-2	TBBA bis-(2-hydroxy-ethyl-ether)	$C_{19}H_{20}Br_4O_4$
	25327-89-3	TBBA-bis-(allyl-ether)	$C_{21}H_{20}Br_4O_2$
	37853-61-5	TBBA-dimethyl-ether	$C_{17}H_{16}Br_4O_2$
56		**Brominated flame retardant (except: PBB,PBDE,TBBPA)**	
		Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(14) [Aliphatic/alicyclic brominated compounds]	ISO code 1043-4
		Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(15) [Aliphatic/alicyclic brominated compounds in combination with antimony compounds]	ISO code 1043-4
		Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(16) [Aromatic brominated compounds(excluding brominated diphenyl ether and biphenyls)]	ISO code 1043-4
		Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(17) [Aromatic brominated compounds(excluding brominated diphenyl ether and biphenyls)in combination with antimony compounds]	ISO code 1043-4
		Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(22) [Aliphatic/alicyclic chlorinated and brominated compounds]	ISO code 1043-4
		Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(42) [Brominated organic phosphorus compounds]	ISO code 1043-4
	69882-11-7	Poly(2,6-dibromo-phenylene oxide)	$(C_6H_2Br_2O)x$
	58965-66-5	Tetra-decabromo-diphenoxy-benzene	$C_{18}Br_{14}O_2$
	37853-59-1	1,2-Bis(2,4,6-tribromo-phenoxy)ethane	$C_{14}H_8Br_6O_2$
	139638-58-7	Brominated epoxy resin end-capped with tribromophenol	-
	135229-48-0	Brominated epoxy resin end-capped with tribromophenol	-
	39635-79-5	Tetrabromo-bisphenol S	$C_{12}H_6Br_4O_4S$
	42757-55-1	TBBS-bis-(2,3-dibromo-propyl-ether)	$C_{18}H_{14}Br_8O_4S$
	615-58-7	2,4-Dibromo-phenol	$C_6H_4Br_2O$
	118-79-6	2,4,6-tribromo-phenol	$C_6H_3Br_3O$

	608-71-9	Pentabromo-phenol	C_6HBr_5O
	3278-89-5	2,4,6-Tribromo-phenyl-allyl-ether	$C_9H_7Br_3O$
	26762-91-4	Tribromo-phenyl-allyl-ether, unspecified	$C_9H_7Br_3O$
	25637-99-4 , 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8)	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α – HBCDD, β-HBCDD, γ-HBCDD)	$C_{12}H_{18}Br_6$
	31454-48-5	Tetrabromo-chyclo-octane	$C_8H_{12}Br_4$
	3322-93-8	1,2-Dibromo-4-(1,2dibromo-methyl)-cyclo-hexane	$C_8H_{12}Br_4$
	25357-79-3	TBPA Na salt	$C_8Br_4O_4Na_2$
	632-79-1	Tetrabromo phthalic anhydride	$C_8Br_4O_3$
	55481-60-2	Bis(methyl)tetrabromo-phtalate	$C_{10}H_6Br_4O_4$
	-	Phthalic acid, 3,4,5,6-tetrabromo-, dialkyl ester (C=6～23)	-
	20566-35-2	2-Hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP	$C_{15}H_{16}Br_4O_7$
	75790-69-1	TBPA, glycol-and propylene-oxide esters	-
	32588-76-4	N,N'-Ethylene–bis (tetrabromo-phthalimide)	$C_{18}H_4Br_8N_2O_4$
	52907-07-0	Ethylene-bis(5,6-dibromo-norbornane-2,3-dicarboximide)	$C_{20}H_{20}Br_4N_2O_4$
	3234-02-4	2,3-Dibromo-2-butene-1,4-diol	$C_4H_6Br_2O_2$
	3296-90-0	Dibromo-neopentyl-glycol	$C_5H_{10}Br_2O_2$
	96-13-9	2,3-Dibromo-propanol	$C_3H_6Br_2O$
	36483-57-5	Tribromo-neopentyl-alcohol	$C_5H_9Br_3O$
	57137-10-7	Poly tribromo-styrene	-
	61368-34-1	Tribromo-styrene	$C_8H_5Br_3$
	171091-06-8	Dibromo-styrene grafted PP	-
	31780-26-4	Poly-dibromo-styrene	$C_8H_6Br_2$
	68955-41-9	Bromo-/Chloro-paraffins	-
	82600-56-4	Bromo-/Chloro-alpha-olefin	-
	593-60-2	Vinylbromide	C_2H_3Br
	52434-90-9	Tris-(2,3-dibromo-propyl)-isocyanurate	$C_{12}H_{15}Br_6N_3O_3$
	49690-63-3	Tris(2,4-Dibromo-phenyl) phosphate	$C_{18}H_9Br_6O_4P$
	19186-97-1	Tris(tribromo-neopentyl) phosphate	$C_{15}H_{24}Br_9O_4P$
	125997-20-8	Chlorinated and brominated phosphate esther	-
	87-83-2	Pentabromo-toluene	$C_7H_3Br_5$
	38521-51-6	Pentabromo-benzyl bromide	$C_7H_2Br_6$
	68441-46-3	1,3-Butadiene homopolymer,brominated	-
	59447-55-1	Pentabromo-benzyl-acrylate, monomer	$C_{10}H_5Br_5O_2$
	59447-57-3	Pentabromo-benzyl-acrylate, polymer	$(C_{10}H_5Br_5O_2)x$
	61262-53-1	Decabromo-diphenyl-ethane	$C_{14}H_4Br_{10}O_2$
	59789-51-4	Tribromo-bisphenyl-maleinimide	$C_{10}H_4Br_3NO_2$
	59789-51-4	Brominated trimethylphenyl-lindane	$C_{18}H_{13}Br_n$ (n=7,8)
	-	Other Brominated flame retardants	-
57		**Antimony and its compounds**	
	7440-36-0	Antimony	Sb
	10025-91-9	Antimony trichloride	$SbCl_3$
	1309-64-4	Antimony trioxide	Sb_2O_3
	1314-60-9	Antimony pentoxide	Sb_2O_5
	15432-85-6	Sodium antimony	Na_3O_4Sb
	-	Other antimony compounds	
58		**Arsenic and its compounds**	
	7440-38-2	Arsenic	As
	1303-00-0	Gallium arsenide	GaAs
	1303-28-2	Diaresenic pentoxide	As_2O_5
	1327-53-3	Diaresenic trioxide	As_2O_3
	7784-40-9	Lead hydrogen arsenate	$AsHO_4Pb$
	15606-95-8	Triethyl aresenate	$C_6H_{15}AsO_4$
	-	Other arsenic compounds	-
60		**Bismuth and its compounds.**	
	7440-69-9	Bismuth	Bi

61		**Nickel and its compounds.**	
	1313-99-1	Nickel(II) oxide	NiO
	3333-67-3	Nickel(II) carbonate	$NiCO_3$
	7786-81-4	Nickel(II) sulfate	$NiSO_4$
	7440-02-0	Nickel	Ni
	-	Other nickel compounds	
62		**Some Phthalic Esters**	
	117-81-7	Bis(2-ethyl(hexyl)phthalate) (DEHP)	$C_6H_4(CO_2C_8H_{17})_2$
	84-74-2	Dibutyl phthalate (DBP)	$C_6H_4(COO(CH_2)_3CH_3)_2$
	85-68-7	Benzyl butyl phthatate(BBP)	$C_{19}H_{20}O_4$
	26761-40-0	Diisodecyl phthalate(DIDP)	$C_6H_4(COOC_{10}H_{21})_2$
	28553-12-0	Diisononyl phthalate(DINP)	$C_6H_4(COOC_9H_{19})_2$
	117-84-0	Di-n-octyl phthalate(DnOP)	$(C_6H_4)(COO(CH_2)_7CH_3)_2$
	84-69-5	Diisobutyl phthalate(DIBP)	$C_6H_4(COOCH_2CH(CH_3)_2)_2$
63		**Selenium and its compounds**	
	7782-49-2	Selenium	Se
	7783-00-8	Selenous acid	H_2SeO_3
	-	Other selenium compounds	
64		**Zinc and its compounds**	
	10025-64-6	Zinc perchlorate hexahydrate	$Zn(ClO_4)_2·6H_2O$
	10139-47-6	Zinc Iodide	ZnI_2
	10196-18-6	Zinc nitrate hexahydrate	$Zn(NO_3)_2·6H_2O$
	10361-95-2	Zinc chlorate	$Zn(ClO_3)_2$
	1313-49-1	Zinc nitride	Zn_3N_2
	1314-13-2	Zinc oxide	ZnO
	1314-84-7	Zinc phosphide	Zn_3P_2
	1314-98-3	Zinc sulfide	ZnS
	1315-11-3	Zinc telluride	ZnTe
	13530-65-9	Zinc chromate	CrO_4Zn
	13637-61-1	Zinc perchlorate	$Zn(ClO_4)_2$
	13814-87-4	Ammonium zinc sulfate	$(NH_4)_2Zn(SO_4)_2$
	13932-17-7	Potassium zinc sulfate	$K_2Zn(SO_4)_2$
	14485-28-0	Zinc phosphate,monobasic	$Zn(H_2PO_4)_2$
	14639-97-5	Zinc ammonium chloride	$(NH_4)_2[ZnCl_4]$
	15060-64-7	Zinc hypophoshite	$Zn(PH_2O_2)_2$
	16871-71-9	Zinc fluorosilicate	$Zn[SiF_6]$
	544-97-8	Dimethyl zinc	$Zn(CH_3)_2$
	557-20-0	Diethyl zinc	$Zn(C_2H_5)_2$
	557-21-1	Zinc cyanide	$Zn(CN)_2$
	557-34-6	Zinc acetate	$Zn(CH_3COO)_2$
	557-42-6	Zinc thiocyanate	$Zn(SCN)_2$
	5970-45-6	Zinc acetate dihydrate	$Zn(CH_3COO)_2·2H_2O$
	73640-07-0	Zinc fluoride tetrahydrate	$ZnF_2·4H_2O$
	7446-20-0	Sulfuric acid, zinc salt(1:1), Heptahydrate	$ZnSO_4·7H_2O$
	7646-85-7	Zinc chloride	$ZnCl_2$
	7699-45-8	Zinc bromide	$ZnBr_2$
	7733-02-0	Zinc sulfate	$ZnSO_4$
	7779-86-4	Zinc hydrosulfite	ZnS_2O_4
	7779-88-6	Zinc nitrate	$Zn(NO_3)_2$
	7783-49-5	Zinc fluoride	ZnF_2
	77998-33-5	Ammonium zinc sulfate hydrateE	$(NH_4)_2Zn(SO_4)_2·6H_2O$
65		**Chlorinated paraffine (except short chain chlorinated paraffins (No.10))**	
		Medium chain chlorinated paraffins (C14-17)	CnH_{2n+2}-xClx (n:14-17)
		Long chain chlorinated paraffins (C18-30)	CnH_{2n+2}-xClx (n:18-30)
66		**Chromium(III) compounds**	
	10022-47-6	Ammonium chromium(III) sulfate dodecahydrate	$Cr(NH_4)(SO_4)_2·2H_2O$
	10025-73-7	Chromic chloride	$CrCl_3$
	10031-25-1	Chromium(III) bromide	$CrBr_3$
	10060-12-5	Chromium Trichloride Hexahydrate	$CrCl_3·6H_2O$
	10101-53-8	Chromic Sulfate	$Cr_2(SO_4)_3$

	10141-00-1	Chromium Potassium Sulfate	$CrK(SO_4)_2$
	1066-30-4	Chromic Acetate	$Cr(CH_3COO)_3$
	12018-22-3	Chromium(III) sulfide	Cr_2S_3
	1308-38-9	Chromium oxide	Cr_2O_3
	13475-98-4	Chromium(III) phosphate hexahydrate	$CrPO_4{\cdot}6H_2O$
	13478-06-3	Chromium(III) bromide hexahydrate	$CrBr_3{\cdot}6H_2O$
	13537-21-8	Chromic perchlorate	$Cr(ClO_4)_3$
	13548-38-4	Chromium nitrate	$Cr(NO_3)_3$
	13548-43-1	Ammonium chromic sulfate	$Cr(NH_4)(SO_4)_2$
	13569-75-0	Chromium(III) iodide	CrI_3
	13573-16-5	Chromate(1-),Diamine tetrakis(Thiocyanate-N)-, Ammonium,(OC-6-11)	trans-$NH_4[Cr(NCS)_4(NH_3)_2]$
	13573-17-6	Reinecke salt monohydrate;Ammonium Tetra thiocyanate diammine chromate	trans-$NH_4[Cr(NCS)_4(NH_3)_2]\cdot H_2O$
	13601-11-1	Potassium hexacyano chromate(III)	$K_3[Cr(CN)_6]$
	15244-38-9	Chromium(III) sulfate N-hydrate	$Cr_2(SO_4)_3{\cdot}18H_2O$
	16165-32-5	Tris(ethylene diamine)chromium(III) Chloride hydrate	$[Cr(C_2H_8N_2)_3]Cl_3{\cdot}3H_2O$
	21679-31-2	Chromiumu(III) acetyl acetonate	$Cr(C_5H_7O_2)_3$
	24094-93-7	Chromium(III) nitride	CrN
	25013-82-5	Chromium(III) acetate monohydrate	$Cr(CH_3COO)_3{\cdot}H_2O$
	26342-61-0	Chromium phosphide	CrP
	30737-19-0	Chromium(III) oxalate	$Cr_2(C_2O_4)_3$
	55147-94-9	Chromium(III) perchlorate hexahydrate	$Cr(ClO_4)_3{\cdot}6H_2O$
	64093-79-4	Neochromium	$Cr(OH)SO_4{\cdot}Na_2SO_4{\cdot}H_2O$
	7440-47-3	Chromium	Cr
	7788-97-8	Chromium(III) fluoride	CrF_3
	7788-99-0	Chromium potassium sulfate dodeca hydrate	$CrK(SO_4)_2{\cdot}12H_2O$
	7789-02-8	Chromium nitrate, Nona hydrate	$Cr(NO_3)_3{\cdot}9H_2O$
	7789-04-0	Chromium(III) phosphate	$CrPO_4$
		Cyanogen compounds.	
	100-47-0	Benzonitrile	C_7H_5N
	107-13-1	Acrylonitrile	C_3H_3N
	109-78-4	Ethylene cyanohydrin	C_3H_5NO
	1194-65-6	2,6-Dichloro benzonitrile	$C_7H_3Cl_2N$
	13453-34-4	Thallium(I) cyanide	TlCN
	140-29-4	Phenyl acetonitrile	C_8H_7N
	143-33-9	Sodiumu cyanide	NaCN
	14763-77-0	Copper cyanide	$Cu(CN)_2$
	151-50-8	Potassium cyanide	KCN
	156-62-7	Calcium cyanamide	$CCaN_2$
	2035-66-7	Palladium(II) cyanide	$Pd(CN)_2$
	21159-32-0	Cesium cyanide	CsCN
	21725-46-2	Cyanazine	$C_9H_{13}ClN_6$
	420-04-2	Cyanamide	$NCNH_2$
67	460-19-5	Cyanogen	$(CN)_2$
	506-64-9	Silvber cyanide	AgCN
	506-65-0	Gold(I) cyanide	AuCN
	506-68-3	Cyanogen bromide	CNBr
	506-77-4	Cyanogen chloride	CNCl
	506-78-5	Cyanogen iodide	CNI
	535-37-5	Gold(I)cyanide trihydrate	$Au(CN)_3{\cdot}3H_2O$
	535-37-5	Gold(I) cyanide	$Au(CN)_3$
	542-62-1	Barium cyanide	$Ba(CN)_2$
	542-83-6	Cadmium cyanide	$Cd(CN)_2$
	542-84-7	Cobalt(II) cyanide	$Co(CN)_2$
	544-92-3	Cuprous cyanide	CuCN
	557-19-7	Nickel cyanide	$Ni(CN)_2$
	557-21-1	Zinc cyanide	$Zn(CN)_2$
	592-01-8	Calcium cyanide	$Ca(CN)_2$
	592-04-1	Mercuric cyanide	$Hg(CN)_2$

	592-05-2	Lead cyanide	$Pb(CN)_2$
	592-06-3	Platinam(II) cyanide	$Pt(CN)_2$
	74-90-8	Hydrogen cyanide	HCN
	7677-24-9	Trimethylsilyl cyanide	$Si(CN)(CH_3)_3$
	917-61-3	Sodium cyanide	CNNaO
68		**Perfluorocarbon (PFC)**	
	115-25-3	Octafluorocyclobutane	C_4F_8
	307-34-6	Octadecafluorooctane, Perfluorooctane	C_8F_{18}
	335-57-9	PFC72,PFC-51-14	C_7F_{16}
	355-25-9	PFC218	C_4F_{10}
	355-42-0	Tetradecafluorohexane, Perfluorohexane	C_6F_{14}
	678-26-2	PFC410	C_5F_{12}
	75-73-0	Tetrafluoromethane	CF_4
	76-16-4	PFC14	C_2F_6
	76-19-7	PFC116	C_3F_8
69		**Hydrogenerated fluorocarbon (HFC)**	
	811-97-2	HFC-134a	CH_2FCF_3
	138495-42-8	HFC-43-10mee	$C_5H_2F_{10}$
	354-33-6	HFC-125	CHF_2CF_3,C_2HF_5
	407-59-0	HFC-356mff,HFC-356ffa	$C_4H_4F_6$
	420-46-2	HFC-143a	CH_3CF_3
	430-66-0	HFC-143	CHF_2CH_2F
	431-89-0	HFC-227ea	CF_3CHFCF_3,C_3HF_7
	679-86-7	HFC-245ca	$C_3H_3F_5$
	690-39-1	HFC-236fa	$C_3H_2F_6$
	75-10-5	HFC-32	CH_2F_2
	75-37-6	HFC-152a	CH_3CHF_2
	75-46-7	HFC-23	CHF_3
	593-53-3	HFC-41	CH_3F
	359-35-3	HFC-134	CHF_2CHF_2
	-	HFC-245fa	-
	-	HFC-125/143a/134a=44/52/4	-
	-	HFC-32/125/134a=20/40/40	-
	-	HFC-32/125/134a=23/25/52	-
	-	HFC-32/125=50/50	-
	-	HFC-32/125=45/55	-
	-	HFC-32/143a=50/50	-
	-	HFC-23/FC-116=39/61	-
	-	HFC-23/FC-116=46/54	-
70		**Halogenated additives**	
	115-96-8	Tris (2-chloroethyl)phosphate	$C_6H_{12}Cl_3PO_4$
	21850-44-2	TBBA-(2,3-dibromo-propyl-ether)	$C_{21}H_{20}Br_8O_2$
	3194-55-6	1,2,5,6,9,10-Hexabromocyclodecane	$C_{12}H_{18}Br_6$
	79-27-6	1,1,2,2-Tetrabromoethane	$C_2H_2Br_4$
	79-94-7	Tetrabromo-bisphenol A(TBBA)	$C_{15}H_{12}Br_4O_2$
	87-82-1	Hexabromobenzene	C_6Br_6
	9002-84-0	Polytetrafuluoroethylene	$(C_2F_4)_n$
	75-25-2	Tribromomethane	$CHBr_3$
	118-79-6	2,4,6-Tribromo-Phenol	$C_6H_3Br_3O$
	4162-45-2	TBBA-bis(2-Hydroxy-ethyl-ether)	$C_{19}H_{20}Br_4O_4$
71		**Maganese and its compounds**	
	7439-96-5	Manganese	Mn
	10031-20-6	Manganese(II) bromide tetrahydrate	$Mn\ Br_2{\cdot}4H_2O$
	10034-96-5	Manganese(II) sulfate heptahydrate	$Mn(C_2O_4)\cdot 2H_2O$
	10043-84-2	Manganese hypophosphite	$Mn(PH_2O_2)_2$
	10101-50-5	Sodium permanganate	$NaMnO_4$
	10124-54-6	Manganese(III) phosphate hydrate	$MnPO_4{\cdot}H_2O$
	10170-69-1	Dimanganese decacarbonyl	$Mn_2(CO)_{10}$
	10377-66-9	Manganese(II) nitrate	$Mn(NO_3)_2$
	12005-95-7	Manganese arsenide	MnAs
	12032-78-9	Manganese phosphide	MnP

	12032-86-9	Manganese silicide	MnSi
	12032-88-1	Manganese telluride	MnTe
	12427-38-2	Maneb	$C_4H_6MnN_2S_4$
	12777-96-7	Manganese carbide	Mn_3C
	1313-13-9	Manganese(IV) oxide	MnO_2
	1313-22-0	Manganese monoselenide	MnSe
	1317-34-6	Manganese(III) oxide, 98%(assay); manganese trioxide	Mn_2O_3
	1317-35-7	Manganomanganic oxide; manganese tetra oxide; trimanganese tetraoxide; manganese(II,III) oxide; manganese oxide(II,III)	Mn_3O_4
	13224-08-3	Manganese(II) sulfate	$MnSO_4$
	1344-43-0	Manganese(II) oxide	MnO
	13446-03-2	Manganese(II) bromide	$MnBr_2$
	13446-34-9	Manganese(II) chloride tetrahydrate	$MnCl_2{\cdot}4H_2O$
	13566-22-8	Ammonium manganese sulfate	$Mn(NH_4)_2(SO_4)$
	13568-71-3	Manganese(II) sulfite	$MnSO_3$
	14154-9-7	Manganese(II) phosphate	$Mn_3(PO_4)_2$
	14284-89-0	Acetylacetone manganese(III) salt; Tris(2,4-pentanedionate)manganese;	$Mn(C_5H_7O_2)_3$
	15364-94-0	Manganese(II) perchlorate	$Mn(ClO_4)_2$
	17141-63-8	Manganese(II) nitrate hexahydrate	$Mn(NO_3)_2{\cdot}6H_2O$
	18820-29-6	Manganese sulfide	MnS
	598-62-9	Manganese(II) carbonate	$MnCO_3$
	6156-78-1	Manganese(II) acetate tetrahydrate	$Mn(CH_3COO)_2{\cdot}4H_2O$
	638-38-0	Manganese(II) acetate	$Mn(CH_3COO)_2$
	640-67-5	Manganese oxalate	$Mn(C_2O_4)$
	6556-16-7	Manganese(II) oxalate dihydrate	$Mn(C_2O_4){\cdot}2H_2O$
	7722-64-7	Potassium permanganate	$KMnO_4$
	7773-01-5	Manganese(II) chloride; Manganesedichloride	$MnCl_2$
	7782-64-1	Manganese difluoride	MnF_2
	7782-76-5	Manganese phosphate, dibasic	$MnHPO_4$
	7783-16-6	Manganese(II) hypophosphite monohydrate	$Mn(PH_2O_2)_2{\cdot}H_2O$
	7783-53-1	Manganese(III) fluoride	MnF_3
	7790-33-2	Manganese(II) iodide	MnI_2
	993-2-2	Manganese(III) acetate	$Mn(CH_3COO)_3$
	-	Other manganese compounds	$Mn(CH_3COO)_3$
72	-	**Organic Tin Compounds (except TBTO (No.7) and TBT/TPT (No.14))**	-
73	2551-62-4	**Sulfur hexafluoride(SF6)**	F_6S
74		**Anthracene**	
	120-12-7	Anthracene	$C_{14}H_{10}$
	90640-80-5	Anthracene oil	
	91995-17-4	Anthracene oil, anthracene paste, distn. Lights	
	91995-15-2	Anthracene oil, anthracene paste, anthracene fraction	
	90640-82-7	Anthracene oil, anthracene-low	
	90640-81-6	Anthracene oil, anthracene paste	
75	101-77-9	**4,4'- Diaminodiphenylmethane**	$C_{13}H_{14}N_2$
76	7646-79-9	**Cobalt dichloride**	C_oCl_2
77	10124-43-3	**Cobalt(II) sulphate**	CoO_4S
78	10141-05-6	**Cobalt(II) dinitrate**	$Co(NO_3)_2$
79	513-79-1	**Cobalt(II) carbonate**	$CCoO_3$
80	71-48-7	**Cobalt(II) diacetate**	$C_4H_6CoO_4$
81	81-15-2	**5-tert-butyl-2,4,6-trinitro-m-xylene(musk xylene)**	$C_{12}H_{15}N_3O_6$
82	121-14-2	**2,4-Dinitrotoluene**	C7H6N2O4
83	65996-93-2	**Coal tar pitch, high temperature**	
84	-	**Aluminosilicate, Refractory Ceramic Fibres**	
85	-	**Zirconia Aluminosilicate, Refractory Ceramic Fibres**	
86	79-06-1	**Acrylamide**	C3H5NO

87	115-96-8	**Tris(2-chloroethyl)phosphate**	
88	79-01-6	**Trichloroethylene**	C2HCl3
89	10043-35-3, 11113-50-1	**Boric acid**	B(OH)3
90	1303-96-4 1330-43-4 12179-04-3	**Disodium tetraborate, anhydrous**	$B_4H_{20}Na_2O_{17}$, B_4Na2O_7、 $B_4H_{10}Na_2O_{12}$
91	12267-73-1	**Tetraboron disodium heptaoxide, hydrate**	$Na_2B_4O_7$ * nH_2O (n=1,5-2)
92	109-86-4	**2-Methoxyethanol**	$C_3H_8O_2$
93	110-80-5	**2-Ethoxyethanol**	$C_4H_{10}O_2$

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