

TWA-06



TKR Groups

**Green Procurement Standard
(Separate Booklet)**

Criteria of Control for Chemical Substance in Products

Green

TKR Corporation / TKR Group

10th Edition

Jan-20

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TKR Group Green Procurement Standards

(Prohibited Substances and Reported Substances)

10th edition

Prohibited Substances: Level 1 (L1) (Chemical Substances prohibited from intentional use or inclusion of impurities exceeding the threshold in Development, Design, Production and Sales).

Content Reported Substances: Level 2 (L2) (Chemical Substances that need to be used, controlled, and reported in Development, Design, Production and Sales).

TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
1	A05	Cadmium / Cadmium Compounds <EU RoHS>	Cadmium	7440-43-9	L1	100	Intentional addition prohibited.
			Cadmium Oxide	1306-19-0		100	Plastics (including rubber), paints, inks.
			Cadmium Sulfide	1306-23-6			
			Cadmium Chloride	10108-64-2		75	Stabilizers, Pigments, Paints, Inks and Fluorescent Lamps.
			Cadmium Sulfate	10124-36-4			
			Other Cadmium Compounds	(-)		20	Cadmium content in solder.
						100	Packaging materials, inks and paints. <4 substances controlled by total amount>
2	A07	Chromium VI Compounds <EU RoHS>	Sodium Dichromate	10588-01-9	L1	1,000	Intentional addition prohibited.
			Chromium (VI) Oxide	1333-82-0		1,000	Plastics (including rubber), Paints and Inks.
			Calcium Chromate	13765-19-0			
			Lead (II) Chromate	7758-97-6		100	Packaging Materials, Inks and Paints. <4 substances controlled by total amount>
			Potassium Dichromate	7778-50-9			
			Potassium Chromate	7789-00-6			
			Barium Chromate	10294-40-3		3	Leather Products in contact with the skin. Molded Articles including Leather Parts.
			Sodium Chromate	7775-11-3			
			Strontium Chromate	7789-06-2			
			Zinc Chromate	13530-65-9			
			Lead Chromate Molybdate Sulphatered	12656-85-8			
			Lead Sulfochromate Yellow	1344-37-2			
			Pentazinc Chromate Octahydroxide	49663-84-5			
			Potassium Hydroxyoctaoxidizincate Dichromate	11103-86-9			
			Sodium Dichromate Dihydrate	7789-12-0			
Other Hexavalent Chromium Compounds	(-)						
3	A09	Lead / Lead Compounds <EU RoHS>	Lead	7439-92-1	L1	1,000	Intentional addition prohibited.
			Lead(II) Carbonate	598-63-0			
			Lead (IV) Oxide	1309-60-0		100	Plastics (including rubber), Paints and Inks
			Lead (II,IV) Oxide	1314-41-6			
			Lead (II) Sulfide	1314-87-0		400	Lead content in lead-free solder.
			Lead (II) Oxide	1317-36-8			
			Lead(II) Carbonate Basic	1319-46-6		1,000	Plating (including electroless plating film)
			Lead Oxidcarbonate	1344-36-1			
						300	Cable covering material must be displayed when the threshold value is exceeded.
			Lead(II) Sulfate	7446-14-2			
			Lead Phosphate	7446-27-7		2,000	Glass of Fluorescent Tubes.
			Lead(II) Chromate	7758-97-6		200	Jewelry (including watch bands)
			Lead(II) Titanate	12060-00-3			
			Lead Lfate, Sulphuric Acid, Lead Salt	15739-80-7		3,500	Steels
			Lead Lphate, Tribasic	12202-17-4		4,000	Aluminum-alloy Copper alloy (brass, phosphor bronze)
			Lead Stearate	1072-35-1		100	Packaging Parts and Materials are controlled with a total of four substances (cadmium, lead, hexavalent chromium, mercury total less than 100ppm).
			Lead Acetate	301-04-2			
Lead (II) Acetate, Trihydrate	6080-56-4						

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3	A09	Lead / Lead Compounds <EU RoHS>	Lead Selenide	12069-00-0	L1	1,000	Intentional addition prohibited.
			Lead Romatelybdate Sulphatered	12656-85-8		300	Household Products for children aged 12 or younger.
			Lead Sulfochromate Yellow	1344-37-2		90	Toy Paint and Surface Paint.
			Other Lead Compounds	(-)			
4	A10	Mercury / Mercury Compounds <EU RoHS>	Mercury	7439-97-6	L1	1,000	Intentional addition prohibited.
			Mercury (II) Chloride	7487-94-7		100	Plastic, Rubber, Ink and Paint
			Mercuric (II) Oxide	21908-53-2			
			Mercuric Chloride	33631-63-9			
			Mercuric Sulfate	7783-35-9		100	Control of Packaging Parts and Materials by total amount of 4 substances.
			Mercuric Nitrate	10045-94-0		3	Battery
			Mercuric Sulfide	1344-48-5			
Other Mercury Compounds	(-)						
5	A11	Nickel / Nickel Compounds ※ Nickel Compounds excluding Metallic Nickel	Nickel	7440-02-0	L1	1,000	Intentional addition prohibited.
			Nickel(II) Oxide	1313-99-1		Prohibited: Applications that are in direct contact with the skin for long periods of time. Report: Other uses → L2	
			Nickel Carbonate	3333-67-3			
			Nickel(II) Sulfate	7786-81-4			
			Other Nickel Compounds	(-)			
6	A17	Tributyltin = Oxide (TBTO)	Tributyl Tin Oxide (TBTO)	56-35-9	L1	-	Intentional addition prohibited. Paints, Pigments, Preservatives, Refrigerants and Foaming Agents.
7	A28	Tri-Substituted Organostannic Compounds	Triphenyltin=N,Ndimethyldithiocarbamate	1803-12-9	L1	1,000	Intentional addition prohibited.
			Triphenyltinfluoride	379-52-2		Pigments, Paints, Preservatives, Refrigerants and Foaming Agents.	
			Triphenyltinacetate	900-95-8			
			Triphenyltinchloride	639-58-7			
			Triphenyltinhydroxide	76-87-9			
			Triphenyltin Fattyacid((9-11)salt)	18380-71-7			
				18380-72-8			
				47672-31-1			
				94850-90-5			
			Triphenyltinchloroacetate	7094-94-2			
Tributyltinmethacrylate	2155-70-6						
Bis(tributyltin)fumalate	6454-35-9						

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7	A28	Tri-Substituted Organostannic Compounds	Tributyltinfluoride	1983-10-4	L1	1,000	Intentional addition prohibited. Pigments, Paints, Preservatives, Refrigerants and Foaming Agents.
			Bis(tributyltin)2,3-Dibromosuccinate	31732-71-5			
			Tributyltinacetate	56-36-0			
			Tributyltinlaurate	3090-36-6			
			Bis(tributyltin)phthalate	4782-29-0			
			Copolymer of Alkyl (c=8) Acrylate, Methyl Methacrylate and Tributyltin Methacrylate	67772-01-4			
			Tributyltinsulfamate	6517-25-5			
			Bis(tributyltin)maleate	14275-57-1			
			Tributyltinchloride	1461-22-9			
			Tributyltin Ycloptane Carbonate = Mixture	85409-17-2			
8	A19	Beryllium Oxide (BeO)	Beryllium Oxide	1304-56-9	L1	1,000	Intentional addition prohibited.
9	A20	Arsenic Pentoxide	Diarsenic Pentoxide	1303-28-2	L1	1,000	Intentional addition prohibited. Use of Defoamers and Fining Agents for Liquid Crystal Panels.
10	A21	Arsenic Trioxide	Diarsenic Trioxide	1327-53-3	L1	1,000	Intentional addition prohibited. Use of Defoamers and Fining Agents for Liquid Crystal Panels.
11	A23	Dibutyltin Compound (DBT)	Dibutyltin Oxide	818-08-6	L1	1,000	Intentional addition prohibited. Applications such as additives to Plastics.
			Dibutyltin Diacetate	1067-33-0			
			Dibutyltin Dilaurate	77-58-7			
			Tributyltin-1,2,3,4,4a,4b,5,6,10,10a-Decahydro-7-Isopropyl-1,4a-Dimethyl-1-Phenanthrenecarboxylatemix	26239-64-5			
			Other Tri-Substituted Organostannic Compounds	(-)			

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11	A23	Dibutyltin Compound (DBT)	Dibutyltin Maleate	78-04-6	L1	1,000	Intentional addition prohibited. Materials with a tin concentration of greater than or equal to the threshold for use in Parts.
			Other Dibutyltin Compounds	(-)			
12	A24	Diocetyl tin Compound (DOT)	Diocetyl Tin Oxide	870-08-6	L1	1,000	Intentional addition prohibited. All applications such as additives to Plastics.
			Diocetyl tin Dilaurate	3648-18-8			
			Other Diocetyl tin Compounds	(-)			
13	B02	Polybrominated Biphenyls <PBBs> <EU RoHS>	Polybrominated Biphenyls	59536-65-1	L1	1,000	Intentional addition prohibited. Flame Retardants and other applications.
			Dibromobiphenyl	92-86-4			
			2-Bromobiphenyl	2052-07-5			
			3-Bromobiphenyl	2113-57-7			
			4-Bromobiphenyl	92-66-0			
			Tetrabromobiphenyl	59080-34-1			
			Tetrabromobiphenyl	40088-45-7			
			Pentabromobiphenyl	56307-79-0			
			Hexabromobiphenyl	59080-40-9			
			hexabromo-1,1-Biphenyl	36355-01-8			
			Firemaster FF-1	67774-32-7			
			Heptabromobiphenyl	35194-78-6			
			Octabromobiphenyl	61288-13-9			
Nonabromobiphenyl	27753-52-2						
Decabromobiphenyl	13654-09-6						
14	B03	Polybrominated Diphenyl Ethers (PBDE) <EU RoHS>	Bromodiphenyl Ether	101-55-3	L1	1,000	Intentional addition prohibited. (Flame retardants, etc.)
			Dibromodiphenyl Ethers	2050-47-7			
			Tribromodiphenyl Ether	49690-94-0			
			Tetrabromodiphenyl Ethers	40088-47-9			
			Pentabromodiphenyl Ether	32534-81-9			
			Hexabromodiphenyl Ether	36483-60-0			
			Heptabromodiphenylether	68928-80-3			

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14	B03	Polybrominated diphenyl ethers (PBDE)	Octabromodiphenyl ether	32536-52-0	L1	1,000	Intentional addition prohibited.
			Nonabromodiphenylether	63936-56-1			
			Decabromodiphenyl ether	1163-19-5			
15	B05	Polychlorinated Biphenyls (PCBs)	Polychlorinated Biphenyls	1336-36-3	L1	-	Intentional addition prohibited. Insulating Oils, Lubricating Oils, Electrically Insulating Media, Plasticizers, Paint Solvents, Thermal Media, etc.
			Monomethyl-Trachloro-Diphenyl Methane (Ugilec 141)	76235-60-6			
			Monomethyl-Dichloro-Diphenyl Methane (Ugilec 121, Ugilec 21)	81161-70-8			
			Monomethyl-Dibromo-Diphenyl Methane (DBBT)	99688-47-8			
16	B06	Polychlorinated Naphthalenes(PCNs) (1 or more chlorine atoms)	Polychlorinated Naphthalenes	70776-03-3	L1	-	Intentional addition prohibited. Insulating Oil, Lubricating Oil, Electrically Insulating Medium, Plasticizer, Paint Solvent and Heat Medium.
			Other Polychlorinated Naphthalenes	(-)			
17	B09	Short Chain Chlorinated Paraffins (SCCP)(C10-13)	Alkanes, C10-13, Chloro	85535-84-8	L1	1,000	Intentional addition prohibited. Bundling Bands, Packaging Parts and Materials, Heat Shrink Tubes, Flat Cables, Insulation Plates, Labels, Sheets, Suction Panels for Mounting In-Vehicle Equipment.
			Alkanes, C10-12, Chloro	108171-26-2			
			Alkanes, C12-13, Chloro	71011-12-6			
			Alkanes, Chloro	61788-76-9			
			Chlorinated Polyethylene	64754-90-1			
			Other Short Chain Chlorinated Paraffins	(-)			
18	B10	Fluorinated Greenhouse Gases (PFC, SF ₆ , HFC)	Tetrafluoromethane (Carbontetrafluoride, PFC-14)	75-73-0	L1	1,000	Intentional addition prohibited. All applications used in Catalysts, Thermal Insulators, and other products.
			Hexafluoroethane (PFC-116)	76-16-4			
			Octafluoropropane (PFC-218)	76-19-7			
			Decafluorobutane (PFC-31-10)	355-25-9			
			Dodecafluoropentane (PFC-41-12)	678-26-2			
			Tetradecafluorohexane (PFC-51-14)	355-42-0			
			Octafluorocyclobutane (PFC-c318)	115-25-3			
			Sulfur Hexafluoride (SF ₆)	2551-62-4			

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18	B10	Fluorinated Greenhouse Gases (PFC, SF6, HFC)	Trifluoromethane - (HFC-23)	75-46-7	L1	1,000	Intentional addition prohibited. All applications used in Catalysts, Thermal Insulators, and other products.
			Difluoromethane - (HFC-32)	75-10-5			
			Methyl fluoride – (HFC-41)	593-53-3			
			2H,3H-Decafluoropentane – (HFC-43-10mee)	138495-42-8			
			Pentafluoroethane (HFC-125)	354-33-6			
			1,1,2,2-Fluoroethane – (HFC-134)	359-35-3			
			1,1,1,2-Fluoroethane – (HFC-134a)	811-97-2			
			1,1-Difluoroethane – (HFC-152a)	75-37-6			
			1,1,2-Rifluoroethane–(HFC-143)	430-66-0			
			1,1,1-Rifluoroethane – (HFC-143a)	420-46-2			
			2H-Tafluoropropane– (HFC-227ea)	431-89-0			
			1,1,1,2,2,3-Xafluoro-Propane (HFC-236cb)	677-56-5			
			1,1,1,2,3,3-Ropropane –(HFC-236ea)	431-63-0			
			1,1,1,3,3,3-Ropropane–(HFC-236fa)	690-39-1			
1,1,2,2,3-Oropropane –(HFC-245ca)	679-86-7						
1,1,1,3,3-Oropropane –(HFC-245fa)	460-73-1						
1,1,1,3,3-Pentafluorobutane – (HFC-365mfc)	406-58-6						
19	B11	Hexabromocy Clodecane (HBCDD)	Hexabromocyclododecane(H BCDD)	25637-99-4 3194-55-6	L1	-	Intentional addition prohibited. Use as Flame Retardants in Plastics and Resins.
			Alpha-Clododecane	134237-50-6			
			Beta-Clododecane	134237-51-7			
			Gamma-Hexabromocyclododecane	134237-55-8			

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
20	B13	Perfluorooctanesulfonic Acid (PFOS) or its Salts and Perfluoro(Octane-1-Sulfonyl) = Fluoride (PFOSF)	Perfluorooctanesulfonic Acid	1763-23-1	L1	1,000	Intentional addition prohibited. Photolithography, Photographic Coating Materials, Hydraulic Oil, Metal Plating, Detergents, Fire Extinguishing Agents and Paper Coating Materials.
			Lithium Perfluorooctanesulfonate	29457-72-5			
			Potassium Perfluorooctanesulfonate	2795-39-3			
			Perfluorooctane Sulfonyl Fluoride (PFOSF)	307-35-7			
21	B15	Polychlorinated Terphenyls (PCT)	Polychlorinated Erphenyls (all Isomers and Congeners)	61788-33-8	L1	-	Intentional addition prohibited.
22	B16	Tris-2-Chloroethyl Phosphate (TCEP)	Tris(2-Chloroethyl) Phosphate (TCEP)	115-96-8	L1	1,000	Intentional addition prohibited. Use as Flame Retardants in Plastics and Resins.
			Tris(1-Methyl-2-Chloroethyl) Phosphate (TCPP)	13674-84-5			
			Tris(1,3-Dichloro-2-Propyl) Phosphate (TDCPP)	13674-87-8			
23	B19	Polyvinyl Chloride (PVC)/PVC Polymer	Polyvinyl Chloride (PVC)	9002-86-2	L1	1,000	Intentional addition prohibited. Bundling Bands, Packaging Parts and Materials, Heat Shrink Tubes, Flat Cables, Insulation Plates, Labels, Sheets, Suction Panels for Mounting In-Vehicle Equipment.
			Other Polyvinyl Chlorides	(-)			
			PVC Copolymers	(-)			
24	C01	Asbestos	Asbestos	1332-21-4	L1	-	Intentional addition prohibited.
			Actinolite	77536-66-4			
			Amosite (Grunerite)	12172-73-5			
			Anthophyllite	77536-67-5			
			Chrysotile	12001-29-5			
			Crocidolite	12001-28-4			
			Tremolite	77536-68-6			
25	C02	Azo Dyes and Pigments (Certain Amine) Azo Dyes and Pigments that produce some Aromatic Amines (Aromatic Amine)	Biphenyl-4-Ylamine	92-67-1	L1	30	Intentional addition prohibited. Earphones, Headphones, Straps, etc., which may generate specified amines in the use of Pigments in the Body-Contacting Parts of products made to have a function of sustained contact with the Human Body, such as Earphones, Headphones, Straps, etc.
			Benzidine	92-87-5			
			4-Chloro-o-Toluidine	95-69-2			
			2-Naphthylamine	91-59-8			
			o-Aminoazotoluene	97-56-3			
			5-Nitro-o-Toluidine	99-55-8			

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25	C02	Azo Dyes and Pigments (Certain Amine)	4-Chloroaniline	106-47-8	L1	30	Intentional addition prohibited.
			4-Methoxy-m-Phenylenediamine	615-05-4			
			2,4,5-Trimethylaniline	137-17-7			
			o-Anisidine	90-04-0			
			4-Amino Azobenzene	60-09-3			
			4,4'-Methylenedianiline	101-77-9			
		Azo Dyes and Pigments which form certain Aromatic Amines (Aromatic Amine)	3,3'-Dichlorobenzidine	91-94-1			
			3,3'-Dimethoxybenzidine	119-90-4			
			3,3'-Dimethylbenzidine	119-93-7			
			4,4'-Methylenedi-o-Toluidine	838-88-0			
			6-Methoxy-m-Toluidine	120-71-8			
			4,4'-Methylene-bis(2-Chloroaniline)	101-14-4			
			4,4'-Oxydianiline	101-80-4			
			4,4'-Thiodianiline	139-65-1			
o-Toluidine	95-53-4						
4-Methyl-m-Phenylenediamine	95-80-7						
26	C04	Ozone-Depleting Substances (ODS) Freon(CFC), Halons, Alternative Halons (HBFC), Alternative Freon (HCFC), and others <Describe some of the exemplified substances>	Trichlorofluoromethane (CFC-11)	75-69-4	L1	-	Intentional addition prohibited. (Refrigerant, cleaning agent)
			Dichlorodifluoromethane (CFC-12)	75-71-8			
			Chlorotrifluoromethane (CFC-13)	75-72-9			
			Pentachlorofluoroethane (CFC-111)	354-56-3			
			Tetrachlorodifluoroethane (CFC-112)	76-12-0			
			Bromochloromethane(Halon-1011)	74-97-5			
			Bromochlorodifluoromethane(Halon-1211)	353-59-3			
			Bromotrifluoromethane (Halon-1301)	75-63-8			
			Dibromotetrafluoroethane (Halon-2402)	124-73-2			

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26	C04	Ozone-Depleting Substances (ODS)	Tetrachloromethane (carbon tetrachloride)	56-23-5	L1	-	
			1.1.1-Trichloroethane	71-55-6			
			Bromomethane(Methyl bromide)	74-83-9			
			Dibromofluoromethane(HBFC -21 B2)	1868-53-7			
27	C07	Formaldehyde	Formaldehyde	50-00-0	L1	-	Intentional addition prohibited. Wooden Products (Speakers, Racks, etc.) using Fiberboard , Particle Board and Plywood. 75 Textile applications.
28	C08	Specified Benzotriazol (=Phenol)	Phenol 2-(2H-Zotriazol-2-yl)-4,6-bis(1,1-Lethyl)	3846-71-7	L1	-	Intentional addition prohibited. UV inhibitors and absorbers used in Decorative Plates, Photographic Paper and Molded Plastic Products.
29	C09	Phthalic Acid Esters Group 1	Bis (2-Ethylhexyl) Phthalate (DEHP)	117-81-7	L1	1,000	Intentional addition prohibited. Plasticizers, Dyes, Pigments, Paints, Inks, Adhesives, etc. 2018/07/21 prohibited The Total Inclusion of 1,000ppm or more in Group 1 is prohibited. 2020/1/6 prohibited
			Dibutylphthalate (DBP)	84-74-2			
			Butyl Benzyl Phthalate (BBP)	85-68-7			
			Diisobutyl Phthalate (DIBP)	84-69-5			
30	C10	Phthalic Acid Esters Group 2	Diisononyl Phthalate (DINP)	28553-12-0 68515-48-0	L1	1,000	Intentional addition prohibited. Plasticizers, Dyes, Pigments, Paints, Inks, Adhesives, etc.
			1,2 Nzenedicarboxylic Aciddiisodecyl Ester (DIDP)	26761-40-0 68515-49-1			
			Di-n-Octyl Phthalate (DNOP)	117-84-0			
			Di-n-Hexyl Phthalate	84-75-3			
			Diisoheptyl Phthlate	71888/89-6 68515-42-4			
			Bis(2-Methoxyethyl) Phthalate	117-82-8			
31	C11	Dimethyl Fumarate (DMF) (Dimethylfumara te)	Dimethyl Fumarate	624-49-7	L1	0.1	Intentional addition prohibited. (Fungicides, desiccants)
32	C12	Bis(2-Ethylhexyl) Phthalate (DEHP) <EU RoHS> 2019/07/22 enforced	Bis(2-Ethylhexyl) Phthalate	117-81-7	L1	1,000	Intentional addition prohibited. 2018/07/21 prohibited

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
33	C13	Dibutyl Phthalate(DBP) <EU RoHS> 2019/07/22 enforced	Dibutyl Phthalate	84-74-2	L1	1,000	Intentional addition prohibited. 2018/07/21 prohibited
34	C14	Butylbenzyl phthalate (BBP) <EU RoHS> 2019/07/22 enforced	Butyl benzyl phthalate	85-68-7	L1	1,000	Intentional addition prohibited. 2018/07/21 prohibited
35	C15	Diisobutyl phthalate (DIBP) <EU RoHS> 2019/07/22 enforced	Diisobutyl Phthalate	84-69-5	L1	1,000	Intentional addition prohibited. 2018/07/21 prohibited
36	*	Perfluorooctanoic Acid (PFOA) Its Aalts and related substances	Perfluorooctanoic Acid (PFOA)	335-67-1	L1	1,000 0.025 1	Intentional addition prohibited. Inclusion of 25ppb (0.025ppm) or more in Homogeneous Materials is prohibited. In addition, the total content of PFOA related substances is prohibited to be over 1000ppb (1ppm). 2020/1/1 prohibited
			Perfluorooctanoic Acid Ammonium Salt (APFO)	3825-26-1			
			Sodium Perfluorooctanoate	335-95-5			
			Potassium Perfluorooctanoate	2395-00-8			
			Silver Perfluorooctanoate	335-93-3			
			Perfluorooctanoyl Fluoride	335-66-0			
			Methyl Perfluorooctanoate	376-27-2			
			Ethyl Perfluorooctanoate	3108-24-5			
Other PFOA related substances	-						
37	*	Hexachlorobenzene (HCB)	Hexachlorobenzene	118-74-1	L1	1,000	Intentional addition prohibited.
38	*	Polycyclic Aromatic Hydrocarbon (PAHs)	Benzo[def]chrysene (Benzo[a]pyrene)	50-32-8	L1	1,000	Intentional addition prohibited.
			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			
39	*	N-Phenylbenzenamine (BNST)	N-Phenyl-Benzenamine	(-)	L1	1,000	Intentional addition prohibited.

L2 Reported Substances

40	A01	Antimony / Antimony Compounds	Antimony	7440-36-0	L2	1,000	All applications.
			Antimony Chloride(III)	10025-91-9			
			Antimony Trioxide, ATO	1309-64-4			
			Antimony Pentoxide	1314-60-9			
			Sodium Antimonate	15432-85-6			
			Other Antimonials	(-)			
41	A02	Arsenic / Arsenic Compounds	Arsenic	7440-38-2	L2	1,000	All applications.
			Gallium Arsenide	1303-00-0			
			Arsenic Pentoxide	1303-28-2			
			Arsenic(III) Oxide	1327-53-3			

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41	A02	Arsenic/Arsenic Compounds	Other Arsenic Compounds	(-)	L2	1,000	All applications.
42	A04	Bismuth and Bismuth Compounds	Bismuth	7440-69-9	L2	1,000	All applications.
			Bismuth Trioxide	1304-76-3			
			Nitric Acid Bismuth	10361-44-1			
			Other Bismuth Compounds	(-)			
43	A11	Nickel/Nickel Compounds ※ Nickel Compounds excluding Metallic Nickel	Nickel	7440-02-0	L2	1,000	All applications. Prohibited: Use in direct contact with skin for a long period of time → L1 Report: Other uses → L2
			Nickel(II) Oxide	1313-99-1			
			Nickel Carbonate	3333-67-3			
			Nickel(II) Sulfate	7786-81-4			
			Other Nickel Compounds	(-)			
44	A13	Selenium/Selenium Compounds	Selenium	7782-49-2	L2	1,000	All applications.
			Selenious Acid	7783-00-8			
			Other Selenium Compounds	(-)			
45	A16	Magnesium	Magnesium	7439-95-4	L2	1,000	All applications.
46	A19	Beryllium and its Compounds	Beryllium	7440-41-7	L2	1,000	All applications. Prohibition: Beryllium oxide
			Other Beryllium Compounds	(-)			
47	A22	Cobalt(II) Chloride (CoCl ₂)	Cobalt Dichloride (CoCl ₂)	7646-79-9	L2	-	Intentional addition prohibited. Humidity indicators used in desiccants (silica gel, etc.).
			Cobalt Chloride Hexahydrate	7791-13-1			
			Cobalt Chloride(III)	10241-04-0			
			Cobalt Chloride	34240-80-7			
48	A25	Chromate (II)	Lead(II) Chromate	7758-97-6	L2	1,000	All applications.
49	A26	Molybdate Chromate Sulfate (C.I. Pigment Red 104)	CI NO 77605	12656-85-8	L2	1,000	All applications.
50	A27	C.I. Pigment Yellow 34	C.I. Pigment Yellow 34	1344-37-2	L2	1,000	All applications.
51	A29	Strontium Chromate	Strontium Chromate	7789-06-2	L2	1,000	All applications.
52	A30	Hydroxyoctaoxidizinc Potassium Dichromate	Potassium Hydroxyoctaoxidizincatedichromate	11103-86-9	L2	1,000	All applications.
53	A31	Pentazinc Chromate Octahydroxide	Pentazinc Chromate Octahydroxide	49663-84-5	L2	1,000	All applications.
54	B08	Brominated Flame Retardants (excluding PBBs, PBDE and HBCDD)	Brominated flame retardant which comes under notation of ISO 1043-4code FR(14)[Aliphatic number /alicyclic brominated compounds]	(-)	L2	1,000 900	All applications. Printed Circuit Board applications. <Total bromine content>

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
54	B08	Brominated Flame Retardants (excluding PBBs, PBDE and HBCDD)	Brominated Flame Retardant which comes under notation of ISO 1043-4 code number FR(15)[Aliphatic/Alicyclic Brominated Compounds in combination with Antimony Compounds]	(-)	L2	1,000	All applications.
			Brominated Flame Retardant which comes under notation of ISO 1043-4 code number FR(16)[Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls]	(-)		900	Printed Circuit Board applications. <Total bromine content>
			Brominated Flame Retardant which comes under notation of ISO 1043-4 code number FR(17)[Aromatic Brominated Compounds excluding Brominated Diphenyl Ether and Biphenyls] in combination with Antimony Compounds]	(-)			
			Brominated Flame Retardant which comes under notation of ISO 1043-4 code number FR(22)[Aliphatic/Alicyclic Chlorinated and Brominated Compounds]	(-)			
			Brominated Flame Retardant which comes under notation of ISO 1043-4 code number FR(42)[Brominated Organic Phosphorus Compounds]	(-)			
			Poly(2,6-Dibromo-Phenylene Oxide)	69882-11-7			
			Tetra-Decabromo-Diphenoxy-Benzene	58965-66-5			
			1,2-Bis(2,4,6-Tribromophenoxy)Ethane	37853-59-1			

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
54	B08	Brominated Flame Retardants (excluding PBBs, PBDE and HBCDD)	3,5,3',5'-Trabromo-Bisphenol A(TBBA)	79-94-7	L2	1,000	All applications.
			TBBA (unspecified)	30496-13-0			
			TBBA(Epichlorhydrin Oligomer)	40039-93-8			
			TBBA(TBBA-Diglycidyl-Ether Oligomer)	70682-74-5			
			TBBA Carbonate Oligomer	28906-13-0			
			TBBA Carbonate Oligomer, Phenoxy End Capped	94344-64-2			
			TBBA Carbonate Oligomer, 2,4,6-Tribromo-Phenol Terminated	71342-77-3			
			TBBA-Bisphenol A-Phosgene Polymer	32844-27-2			
			Brominated Epoxy Resin End-Capped with Tribromophenol	139638-58-7			
			Brominated Epoxy Resin End-Capped with Tribromophenol	135229-48-0			
			TBBA-(2,3-Dibromo-Propyl-Ether)	21850-44-2			
			TBBA Bis-(2-Hydroxy-Ethyl-Ether)	4162-45-2			
			TBBA-Bis-(Allyl-Ether)	25327-89-3			
			TBBA-Dimethyl-Ether	37853-61-5			
			Tetrabromo-Bisphenol S	39635-79-5			
			TBBS-Bis-(2,3-Dibromo-Propyl-Ether)	42757-55-1			
			2,4-Dibromo-Phenol	615-58-7			
			2,4,6-Tribromo-Phenol	118-79-6			
Pentabromo-Phenol	608-71-9						
2,4,6-Tribromo-Phenyl-Allyl-Ether	3278-89-5						
Tribromo-Phenyl-Allyl-Ether, unspecified	26762-91-4						

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
54	B08	Brominated Flame Retardants (excluding PBBs, PBDE and HBCDD)	Exabromocyclododecane (HBCDD)	25637-99-4 3194-55-6	L2	1,000	All applications.
			Tetrabromo-Chyclo-Octane	31454-48-5			
			1,2-Dibromo-4-(1,2 Dibromo-Methyl)-Cyclo-Hexane	3322-93-8			
			TBPA Na Salt	25357-79-3			
			Tetrabromo Phthalic Anhydride	632-79-1			
			Bis(Methyl) Tetrabromo-Phtalate	55481-60-2			
			Bis(2-Ethylhexyl) Tetrabromo-Phtalate	26040-51-7			
			2-Hydroxy-Propyl-2-(2-Hydroxyethoxy)-Ethyl-TBP	20566-35-2			
			TBPA, Glycol-and Propylene-Oxide Esters	75790-69-1			
			N,N'-Ethylene -Bis-(Tetrabromophthalimide)	32588-76-4			
			Ethylene-Bis(5,6-Dibromo-Norbornane-2,3-Dicarboximide)	52907-07-0			
			2,3-Dibromo-2-Butene-1,4-Diol	3234-02-4			
			Dibromo-Neopentyl-Glycol	3296-90-0			
			Dibromo-Propanol	96-13-9			
			Tribromo-Neopentyl-Alcohol	36483-57-5			
			Poly Tribromo-Styrene	57137-10-7			
			Tribromo-Styrene	61368-34-1			
			Dibromo-Styrene Grafted PP	171091-06-8			
			Poly-Dibromo-Styrene	31780-26-4			
			Bromo-/Chloro-Paraffins	68955-41-9			
Bromo-/Chloro-Alpha-Olefin	82600-56-4						
Vinylbromide	593-60-2						
Tris-(2,3-Dibromo-Propyl)-Isocyanurate	52434-90-9						

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
54	B08	Brominated Flame Retardants (excluding PBBs, PBDE and HBCDD)	Tris(2,4-Dibromo-Phenyl) Phosphate	49690-63-3	L2	1,000	All applications.
			Tris(Tribromo-Neopentyl) Phosphate	19186-97-1			
			Chlorinated and Nated Phosphate Esther	125997-20-8			
			Pentabromo-Toluene	87-83-2			
			Pentabromo-Benzyl Bromide	38521-51-6			
			1,3-Butadiene Homopolymer, Brominated	68441-46-3			
			Pentabromo-Benzyl-Acrylate, Monomer	59447-55-1			
			Pentabromo-Benzyl-Acrylate, Polymer	59447-57-3			
			Decabromo-Diphenyl-Ethane	84852-53-9			
			Tribromo-Bisphenyl-Maleinimide	59789-51-4			
			Octabromo-1,1,3-Trimethyl-1-Phenylindane (FR-1808)	155613-93-7			
			Other Brominated Flame Retardants	(-)			
55	B12	Perchlorates	Lithium Perchlorate	7791-03-9	L2	0.006	All applications.
			Other Perchlorate Compounds	(-)			
56	B17	[4-{Bis(4-Dimethylaminophenyl)methylene}-2,5-Cyclohexadiene-1-Ylidene]Dimethylammonium Chloride (C.I. Basic Violet 3)	Crystal Violet	548-62-9	L2	1,000	All applications.
57	B18	Chlorine Flame Retardant	Tetrakis(2-Chloroethyl) Dichloroisopentyldiphosphate	38051-10-4	L2	1,000	All applications. Printed Circuit Board applications. <total chlorine content>
			Tris(1-Chloro-2-Propyl) Phosphate	13674-84-5		900	
			Tris(2,3-Dichloro-1-Propyl) Phosphate	66108-37-0			

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
58	B20	2,2'-Dichloro-4,4'-Methylenedianiline (MOCA)	4,4'-Methylene bis(2-Chloroaniline)	101-14-4	L2	1,000	All applications.
59	C06	Radioactive Substances	Uranium-238	7440-61-1	L2	-	Intentional addition prohibited. Applications: Smoke Detectors, Measurements Equipment, Gauges, Detection and Organs
			Radon	10043-92-2			
			Americium-241	14596-10-2			
			Thorium-232	7440-29-1			
			Cesium-137	10045-97-3			
			Strontium-90	10098-97-2			
			Other Radioactive Substances	(-)			
60	C16	Aluminosilicate, Refractory Ceramic Fibers	(-)	(-)	L2	1,000	All applications.
61	C17	Refractory Ceramic Fibers, Zirconia Aluminosilicate	(-)	(-)	L2	1,000	All applications.
62	C18	Boric acid, specified Sodium Borate	Orthoboric Acid	10043-35-3	L2	1,000	All applications.
			Boric Acid	11113-50-1			
63	C19	Disodium Tetraborate Anhydride	Disodium Teraborated Ecahydrate	1330-43-4	L2	1,000	All applications.
			Disodium Tetraborate, Anhydrous	1303-96-4			
			Disodium Tetraborate, Anhydrous	12179-04-3			
64	C20	Disodium Tetraboron Heptoxide Hydrate (Disodium Tetraborate Hydrate)	Tetraboron Disodium Heptaoxide, Hydrate	12267-73-1	L2	1,000	All applications.
65	C21	1,2-Benzenedicarboxylic Acid, Branched Dialkyl Esters with 6 - 8 Carbon Atoms (DIHP) mainly composed of 7 Carbon Atoms	Diisoheptyl Phthalate	71888-89-6	L2	1,000	All applications.

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
66	C22	1,2-Benzenedicarboxylic Acids, Branched and straight chain Dialkyl Esters (DHNUP) having 7-11 Carbon Atoms	1,2-Benzenedicarboxylic Acid, Di-C7-11-Branched and Linear Alkyl Esters	68515-42-4	L2	1,000	All applications.
67	C23	Bis(2-Methoxyethyl) Phthalate	Bis(2-Methoxyethyl) Phthalate	117-82-8	L2	1,000	All applications.
68	C24	4-(1,1,3,3-Tetramethylbutyl) Phenol, (4-Tert-Octylphenol)	4-Tert-Octylphenol	140-66-9	L2	1,000	All applications.
69	C25	Bis(2-Methoxyethyl) Ether	Bis(2-Methoxyethyl) Ether	111-96-6	L2	1,000	All applications.
70	C26	N,N-Dimethylacetamide (DMAC)	N,N-Dimethylacetamide	127-19-5	L2	1,000	All applications.
71	*	Halogenated Compounds	Halogen Compounds <Organochlorine Compounds><Organobromine Compounds> (Related to No. 65 and 70)	(-)	L2	900	Laminate object. Intentional addition to other Plastic Flame Retardants and Plasticizers is prohibited.
72	*		REACH/restriction substances		L2	-	Apply the latest version of the REACH.
73	*		REACH/ approved substances		L2	-	Apply the latest version of the REACH.
74	*		REACH/SVHC		L2	-	Apply the latest version of the REACH.
75	*		ChemSHERPA Controlled substances		L2	-	Apply the latest Laws and Regulations.

(Substances Excluded from Application)

№	Substance Group	Chemical Substance Group	Applications, Applications, and Targets
1	A05	Cadmium / Cadmium Compounds	<ul style="list-style-type: none"> • Cadmium and its compounds in electrical contacts. • Cadmium in filter glasses and glasses used for reflectance standards used for equipment classified as category 8, 9 and 11 as defined in Annex I of EU RoHS Directive. • Cadmium in striking optical filter glass types used for equipment classified as category 1 to 7 and 10 as defined in Annex I of EU RoHS Directive; excluding applications falling under point 39 of the Annex III of EU RoHS Directive. • Cadmium in glazes used for reflectance standards used for equipment classified as category 1 to 7 and 10 as defined in Annex I of EU RoHS Directive.
2	A09	Lead / Lead Compounds	<ul style="list-style-type: none"> • Lead in glass of fluorescent tubes not exceeding 0.2% by weight. • Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight.(Valid until June 30, 2019) • Lead as an alloying element in steel for machining purposes containing up to 0.35% lead by weight and in batch hot dip galvanized steel components containing up to 0.2% lead by weight.(Valid from July 1, 2019) • Lead as an alloying element in aluminium containing up to 0.4% lead by weight. (Valid until June 30, 2019) • Lead as an alloying element in aluminium containing up to 0.4% lead by weight, provided it stems from lead-bearing aluminium scrap recycling.(Valid from July 1, 2019) • Lead as an alloying element in aluminium for machining purposes with a lead content up to 0.4% by weight.(Valid from July 1, 2019) • Copper alloy containing up to 4% lead by weight. • Lead in high melting temperature type solders. (i.e. lead- based alloys containing 85% by weight or more lead) • Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectric devices, or in a glass or ceramic matrix compound. • Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher. • Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors. • Lead in white glasses used for optical applications. • Lead in filter glasses and glasses used for reflectance standards used for equipment classified as category 8, 9 and 11 as defined in Annex I of EU RoHS Directive. • Lead in ion coloured optical filter glass types used for equipment classified as category 1 to 7 and 10 as defined in Annex I of EU RoHS Directive. • Lead in glazes used for reflectance standards used for equipment classified as category 1 to 7 and 10 as defined in Annex I of EU RoHS Directive. • Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages where at least one of the following criteria applies. • Lead in cermet-based trimmer potentiometer elements.
3	A10	Mercury / Mercury Compounds	<ul style="list-style-type: none"> • Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Short length (≤ 500 mm) not exceeding (per lamp): 3.5 mg. • Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Medium length (> 500 mm and $\leq 1\ 500$ mm) not exceeding (per lamp): 5 mg. • Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Long length ($> 1\ 500$ mm) not exceeding (per lamp):13mg.
4	B10	Fluorinated Greenhouse Gases (PFCs, SF6, HFCs)	<ul style="list-style-type: none"> • SF6 incorporated into surge absorber in power unit for projector.
5	B13	Perfluorooctane Sulfonate (PFOS)	<ul style="list-style-type: none"> • Any photographic coatings applied to films, papers, or printing plates.
6	A23	Dibutyltin Compound (DBT)	<ul style="list-style-type: none"> • Packaging components and materials for parts and devices, which are reused and not provided to the consumer. • Packaging components or materials for devices, semiconductors, and any other components (e.g. trays, magazine sticks, stoppers, reels, embossed carrier tapes).
7	B19	Polyvinyl Chloride (PVC)	<ul style="list-style-type: none"> • Binder for resins used for paints, inks, coating agents, adhesives etc.

