TWA-06

TKR Groups

Green Procurement Standard (Separate Booklet)

Criteria of Control for Chemical Substance in Products

G r e e N

TKR Corporation / TKR Group

11th Edition

Oct-20

Contents

TKR Group Green Procurement Standards

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(Prohibited Substances and Reported Substances)

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	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			
		<EU RoHS>	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	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			
		<EU RoHS>	Lead (II) Chromate	7758-97-6		100	Packaging Materials, Inks and Paints.
			Potassium Dichromate	7778-50-9			<4 substances controlled by total amount>
			Potassium Chromate	7789-00-6			
			Barium Chromate	10294-40-3		3	Leather Products in contact with the skin.
			Sodium Chromate	7775-11-3			Molded Articles including Leather Parts.
			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 Hydroxyoctaoxodizincate Dichromate	11103-86-9			
			Sodium Dichromate Dihydrate	7789-12-0			
			Other Hexavalent Hromium Compounds	(-)			
3	A09	Lead / Lead Compounds	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
		<EU RoHS>	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
						4,000	Aluminum-alloy
			Lead Lphate, Tribasic	12202-17-4			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			
			Other Lead Compounds	(-)		90	Toy Paint and Surface Paint.
4	A10	Mercury / Mercury Compounds <EU RoHS>	Mercury	7439-97-6	L1	1,000	Intentional addition prohibited.
			Mercury (II) Chloride	7487-94-7			
			Mercuric (II) Oxide	21908-53-2		100	Plastic, Rubber, Ink and Paint
			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			
			Mercuric Sulfide	1344-48-5			
			Other Mercury Compounds	(-)		3	Battery
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			
			Nickel Carbonate	3333-67-3			Prohibited: Applications that are in direct contact with the skin for long periods of time.
			Nickel(II) Sulfate	7786-81-4			
			Other Nickel Compounds	(-)			Report: Other uses → L2
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			
			Coplymer 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 Yclopentane Carbonate = Mixture	85409-17-2			
			Tributyltin-1,2,3,4,4a,4b,5,6,10,10a-Decahydro-7-Isoplopyl-1,4a-Dimethyl-1-Phenanthrencarboxylatemix	26239-64-5			
			Other Tri-Substituted Organostannic Compounds	(-)			
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			

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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	Dioctyltin Compound (DOT)	Dioctyl Tin Oxide	870-08-6	L1	1,000	Intentional addition prohibited. All applications such as additives to Plastics.
			Dioctyltin Dilaurate	3648-18-8			
			Other Dioctyltin 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			
			Tetrabromobiphen	59080-34-1			
			Tetrabromobiphenyl	40088-45-7			
			Pentabrphenyl	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			
			Nonabiphenyl	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			
			Pentabromodidphenyl 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, SF6, 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 (SF6)	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)	Hexabromocyclododeecane(HBCDD)	25637-99-4 3194-55-6	L1	-	Intentional addition prohibited. Use as Flame Retardants in Plastics and Resins.
			Alpha-Clododeecane	134237-50-6			
			Beta-Clododeecane	134237-51-7			
			Gamma-Hexabromocyclododeecane	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			Exemption Used in parts that are not in continuous contact with the Human Body, such as a Remote Controller or Mouse.
			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 <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 , Pardicle Board and Plywood.
						75	Textile applications.
28	C08	Specified Benzotriadol (=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
			Dibutylphthalate (DBP)	84-74-2			
			Butyl Benzyl Phthalate (BBP)	85-68-7			
			Diisobutyl Phthalate (DIBP)	84-69-5			The Total Inclusion of 1,000ppm or more in Group 1 is prohibited. 2020/1/6 prohibited
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 Acciddiisodecyl 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) (Dimethylfumarate)	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	Intentional addition prohibited.
			Perfluorooctanoic Acid Ammonium Salt (APFO)	3825-26-1		0.025 1	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
			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-Phenylbenzene	N-Phenyl-Benzenamine	(-)	L1	1,000	Intentional addition prohibited.

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
40	*	Long-Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl Sulfonate Chemical Substances	Sodium;2-methylpropane-1-sulfonate 1)	68187-47-3	L1	—	Intentional addition prohibited. 2020/9/25 prohibited Uses: Coatings on parts / products, or mixture products such as coating materials Example: Surface coating Inks, adhesives, paints such as lacquer and enamel, varnishes, sealants, mascots, etc. "antireflective coating, photoresists, or surfactant for use in photomicrolithography and other processes to produce semiconductors or similar components of electronic or other miniaturized devices," those uses can be considered outside the scope of this notification requirement. 1) The use of this chemical substance in adhesives is outside the scope of this notification requirement. 2) The use of this chemical substance in the manufacture/process of coatings/finishes for textile, leather, and hard surface treatments, and in the manufacture of wetting agents are outside the scope of this notification requirement. 3) CBI (trade secret information) is applicable only when the EPA (Economic Partnership Agreement) Accession No. shown on the left in the table has been obtained.
			1,1,2,2-Tetrahydroperfluoroalkyl(C8-C14) alcohol 2)	68391-08-2			
			Thiols, C8-20, gamma-omega-perfluoro, telomers with acrylamide	70969-47-0			
			Thiols, C4-20, gamma-omega-perfluoro, telomers with acrylamide and acrylic acid, sodium salts	1078712-88-5			
			1-Propanaminium, 3-amino-N-(carboxymethyl)-N,Ndimethyl-,N-(2-((gammaomega-perfluoro-C4-20-alkyl)thio)acetyl) derivs., inner salts	1078715-61-3			
			Polyfluoroalkyl betaine (generic)	CBI 71217 3)			
			Modified fluoroalkyl urethane (generic)	CBI 89419 3)			
			Perfluorinated polyamine (generic)	CBI 274147 3)			
41	*	CMR substances in textile products	—	—	L1	—	Note) See below for details on CMR substances in textile products (page 22).
42	*	Volatile Organic Compounds (VOCs) and Individual Hazardous Substances	Substances subject to Chinese national standards (GB33372-2020)	—	L1	—	Adhesive (Effective date: 2020.12.1) Conforms to the standard on the left Note) See below for Chinese national standards (pages 23-24)
			Substances subject to Chinese national standards (GB30981-2020)				Industrial protective paint (Effective date: 2020.12.1) Conforms to the standard on the left Note) See below for Chinese national standards (pages 25-27)
			Substances subject to Chinese national standards (GB38507-2020)				Ink (Effective date: 2021.4.1) Conforms to the standard on the left Note) See below for Chinese national standards (page 28)
			Substances subject to Chinese national standards (GB38508-2020)				Cleaning agent (Effective date: 2020.12.1) Conforms to the standard on the left Note) See below for Chinese national standards (page 29)
			Substances subject to Chinese national standards (GB24409-2020)				Vehicle paint (Effective date: 2020.12.1) Conforms to the standard on the left Note) See below for Chinese national standards (pages 30-32)
			Substances subject to Chinese national standards (GB18581-2020)				Paints for wooden appliances (Effective date: December 1, 2020) Conforms to the standard on the left Note) See below for Chinese national standards (pages 33-34)
			Substances subject to Chinese national standards (GB18582-2020)				Building wall paint (Effective date: 2020.12.1) Conforms to the standard on the left Note) See below for Chinese national standards (pages 35-36)

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
L2 Reported Substances							
43	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	(-)			
44	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			
44	A02	Arsenic/Arsenic Compounds	Other Arsenic Compounds	(-)	L2	1,000	All applications.
45	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	(-)			
46	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	(-)			
47	A13	Selenium/Selenium Compounds	Selenium	7782-49-2	L2	1,000	All applications.
			Selenious Acid	7783-00-8			
			Other Selenium Compounds	(-)			
48	A16	Magnesium	Magnesium	7439-95-4	L2	1,000	All applications.
49	A19	Beryllium and its Compounds	Beryllium	7440-41-7	L2	1,000	All applications. Prohibition: Beryllium oxide
			Other Beryllium Compounds	(-)			
50	A22	Cobalt(II) Chloride (CoCL2)	Cobalt Dichloride (CoCl2)	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			

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TKR №	Substance Group	Chemical Substance Group	Substance Name	CAS №	Managing Category	Threshold Level (ppm)	Applications, Applications, and Targets
51	A25	Chromate (II)	Lead(II) Chromate	7758-97-6	L2	1,000	All applications.
52	A26	Molybdate Chromate Sulfate (C.I. Pigment Red 104)	CI NO 77605	12656-85-8	L2	1,000	All applications.
53	A27	C.I. Pigment Yellow 34	C.I. Pigment Yellow 34	1344-37-2	L2	1,000	All applications.
54	A29	Strontium Chromate	Strontium Chromate	7789-06-2	L2	1,000	All applications.
55	A30	Hydroxyoctaoxodizinc Potassium Dichromate	Potassium Hydroxyoctaoxodizincatedichromate	11103-86-9	L2	1,000	All applications.
56	A31	Pentazinc Chomate Octahydroxide	Pentazinc Chromate Octahydroxide	49663-84-5	L2	1,000	All applications.
57	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
57	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 w hich 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 FR17)[Arom Atic 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-Romo-Henoxy)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
57	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-Alltl-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
57	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-Ethlhexyl) 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
57	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	(-)			
58	B12	Perchlorates	Lithium Perchlorate	7791-03-9	L2	0.006	All applications.
			Other Perchlorate Compounds	(-)			
59	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.
60	B18	Chlorine Flame Retardant	Tetrakis(2-Chloroethyl) Dichloroisopentyldiphosphate	38051-10-4	L2	1,000 900	All applications. Printed Circuit Board applications. <total chlorine content>
			Tris(1-Chloro-2-Propyl) Phosphate	13674-84-5			
			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
61	B20	2,2'-Dichloro-4,4'-Methylenedianiline (MOCA)	4,4'-Methylene bis(2-Chloroaniline)	101-14-4	L2	1,000	All applications.
62	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	(-)			
63	C16	Aluminosilicate, Refractory Ceramic Fibers	(-)	(-)	L2	1,000	All applications.
64	C17	Refractory Ceramic Fibers, Zirconia Aluminosilicate	(-)	(-)	L2	1,000	All applications.
65	C18	Boric acid, specified Sodium Borate	Orthoboric Acid	10043-35-3	L2	1,000	All applications.
			Boric Acid	11113-50-1			
66	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			
67	C20	Disodium Tetraboron Heptoxide Hydrate (Disodium Tetraborate Hydrate)	Tetraboron Disodium Heptaoxide, Hydrate	12267-73-1	L2	1,000	All applications.
68	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
69	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.
70	C23	Bis(2-Methoxyethyl) Phthalate	Bis(2-Methoxyethyl) Phthalate	117-82-8	L2	1,000	All applications.
71	C24	4- (1,1,3,3-Tetramethylbutyl) Phenol, (4-Tert-Octylphenol)	4-Tert-Octylphenol	140-66-9	L2	1,000	All applications.
72	C25	Bis(2-Methoxyethyl) Ether	Bis(2-Methoxyethyl) Ether	111-96-6	L2	1,000	All applications.
73	C26	N,N-Dimethylacetamide (DMAC)	N,N-Dimethylacetamide	127-19-5	L2	1,000	All applications.
74	*	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.
75	*		REACH/restriction substances		L2	-	Apply the latest version of the REACH.
76	*		REACH/ approved substances		L2	-	Apply the latest version of the REACH.
77	*		REACH/SVHC		L2	-	Apply the latest version of the REACH.
78	*		ChemSHERPA Controlled substances		L2	-	Apply the latest Laws and Regulations.

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(Prohibited Substances and Reported Substances)

CMR substances in textile products(Carcinogenic, Mutagenic or Toxic to Reproduction toxic：
Substances with carcinogenicity, mutagenicity and reproductive toxicity)

"Management Level" is defined as Level1 for all substances listed in the table below.

Textile products or textile component which will contact human skin in normal application(Ex. Strap, carrying bag, carrying case, pouch) are target of control. But here the textile products or textile components are limited to those made of textile only, or weight ratio of textile partial equals or exceed 80%.

No.	Substance name	CAS №.	Threshold level (in homogenous material)
1	Cadmium and its compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6)	—	0.0001 wt% (1 ppm) (expressed as Cd metal that can be extracted from the material)
2	Chromium (VI) compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6)	—	0.0001 wt% (1 ppm) (expressed as Cr (VI) metal that can be extracted from the material)
3	Arsenic compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6)	—	0.0001 wt% (1 ppm) (expressed as As metal that can be extracted from the material)
4	Lead and its compounds (listed in Annex XVII, Entry 28, 29, 30, Appendices 1-6)	—	0.0001 wt% (1 ppm) (expressed as Pb metal that can be extracted from the material)
5	Benzene	71-43-2	0.0005 wt% (5 ppm)
6	Benz[a]anthracene (BaA)	56-55-3	0.0001 wt% (1 ppm)
7	Benzo[b]fluoranthene (BbFA), Benz[e]acephenanthrylene	205-99-2	0.0001 wt% (1 ppm)
8	Benzo[a]pyrene (BaP); Benzo[def]chrysene	50-32-8	0.0001 wt% (1 ppm)
9	Benzo[e]pyrene (BeP)	192-97-2	0.0001 wt% (1 ppm)
10	Benzo[j]fluoranthene (BjFA)	205-82-3	0.0001 wt% (1 ppm)
11	Benzo[k]fluoranthene (BkFA)	207-08-9	0.0001 wt% (1 ppm)
12	Chrysene (CHR)	218-01-9	0.0001 wt% (1 ppm)
13	Dibenz[a,h]anthracene (DBahA)	53-70-3	0.0001 wt% (1 ppm)
14	α,α,α,4-Tetrachlorotoluene; p-Chlorobenzotrichloride	5216-25-1	0.0001 wt% (1 ppm)
15	α,α,α-Trichlorotoluene; benzotrichloride	98-07-7	0.0001 wt% (1 ppm)
16	α-Chlorotoluene; Benzyl chloride	100-44-7	0.0001 wt% (1 ppm)
17	Formaldehyde	50-00-0	0.0075 wt% (75 ppm)
18	1,2-Benzenedicarboxylic acid;	71888-89-6	0.1 wt% (1000 ppm)
19	Bis(2-methoxyethyl) phthalate	117-82-8	0.1 wt% (1000 ppm) (As the sum of the substances on the left or EU REACH ANNEX XVII and other phthalates listed in this table.)
20	Diisopentylphthalate	605-50-5	0.1 wt% (1000 ppm) (As the sum of the substances on the left or EU REACH ANNEX XVII and other phthalates listed in this table.)
21	Di-n-pentyl phthalate (DPP)	131-18-0	0.1 wt% (1000 ppm) (As the sum of the substances on the left or EU REACH ANNEX XVII and other phthalates listed in this table.)
22	Di-n-hexyl phthalate (DnHP)	84-75-3	0.1 wt% (1000 ppm) (As the sum of the substances on the left or EU REACH ANNEX XVII and other phthalates listed in this table.)
23	N-Methyl-2-pyrrolidone;1-Methyl-2-pyrrolidone(NMP)	872-50-4	0.3 wt% (3000 ppm)
24	N,N-Dimethylacetamide(DMAC)	127-19-5	0.3 wt% (3000 ppm)
25	N,N-Dimethylformamide; Dimethyl formamide(DMF)	68-12-2	0.3 wt% (3000 ppm)
26	1,4,5,8-Tetraaminoanthraquinone C.I.Disperse Blue 1	2475-45-8	0.005 wt% (50 ppm)
27	Benzenamine, 4,4'-(4-iminocyclohexa-2,5-dienylidenemethylene)dianiline hydrochloride C.I. Basic Red 9	569-61-9	0.005 wt% (50 ppm)
28	[4-[4,4'-Bis(dimethylamino)benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride; C.I. Basic Violet 3 with ≥ 0,1 % of Michler's ketone (EC no. 202-027-5)	548-62-9	0.005 wt% (50 ppm)
29	4-Chloro-o-toluidinium chloride	3165-93-3	0.003 wt% (30 ppm)
30	2-Naphthylammoniumacetate	553-00-4	0.003 wt% (30 ppm)
31	4-Methoxy-m-phenylene diammonium sulphate; 2,4-Diaminoanisole sulphate	39156-41-7	0.003 wt% (30 ppm)
32	2,4,5-Trimethylaniline hydrochloride	21436-97-5	0.003 wt% (30 ppm)
33	Quinoline	91-22-5	0.005 wt% (50 ppm)

[Chinese National Standards]

See below for details on Chinese National Standards.

GB 33372-2020 Limit of volatile organic compounds content in adhesive (Effective date: December 1, 2020)
The assessment of compliance with the regulation shall be based on the original Chinese text of the latest GB, as published by the Chinese government.

■ **Scope of application**

This standard specifies the Limit Requirements / Test Methods / Inspection Rules / Package Label concerning volatile organic compound (VOC) content in adhesives under the specified conditions.

This standard applies to the limits of VOC content in solvent-based, water-based, and solvent-free adhesives.
This standard does not apply to the following.
- Adhesives that are used as intermediates, or for the production of raw materials without proceeding to distribution
- Adhesives that are used for testing or evaluation in the laboratory, regardless of the type of research/development, quality assurance or analysis
- Urea formaldehyde, phenol formaldehyde, or melamine formaldehyde adhesives
- Special functional surface treatment agents that are used for material adhesion

■ **Requirements**

Each VOC content in adhesive products, such as benzene series (benzene, toluene and xylene), halogenated alkyl dichloromethane, 1,2 dichloroethane, 1,1,1 trichloroethane, 1,1,2 trichloroethane, toluene diisocyanate, and free formaldehyde, shall be satisfied the specifications in GB30982 or GB 19340.
The limit of VOC content in solvent-based adhesives shall be satisfied the specifications in Table 1.
The limit of VOC content in water-based adhesives shall be satisfied the specifications in Table 2.
For the limit of VOC content in solvent-free adhesives, see Table 3.
If use in more than one application is indicated on an adhesive product, the lowest limit in each requirement shall be applied.

■ **Limit value**

Table 1: Limits on VOC content in solvent-based adhesives

Applications	Indicator (g/L), ≤				
	Neoprenes	Styrene-butadiene-styrene block copolymer rubbers	Polyurethanes	Acrylates	Others
Buildings	650	550	500	510	500
Interior decoration	600	500	400	510	450
Shoes and luggage	600	500	400	-	400
Woodworking and furniture	600	500	400	510	400
Assembling	600	550	250	510	250
Packaging	600	500	400	510	500
Special	850[a]	-	550[b]	-	700[c]
Others	600	500	250	510	250

[a] For on-site repair
[b] For heavy corrosion prevention
[c] Hot vulcanizing adhesive for automobile and bridge shock absorption

Table 2: Limits on VOC content in water-based adhesives

Applications	Indicator (g/L), ≤						
	Polyvinyl acetates	Polyvinyl alcohols	Rubbers	Polyurethanes	Vinyl acetate-ethylene co-polymer emulsions	Acrylates	Others
Buildings	100	100	150	100	50	100	50
Interior decoration	50	50	100	50	50	50	50
Shoes and luggage	50	-	150	50	50	100	50
Woodworking and furniture	100	-	100	50	50	50	50
Transportation	50	-	50	50	50	50	50
Assembling	100	-	100	50	50	50	50
Packaging	50	-	50	50	50	50	50
Others	50	50	50	50	50	50	50

Table 3: Limits on VOC content in solvent-free adhesives

Applications	Indicator (g/L) ≤								
	Organic silicon	MS	Polyurethanes	Polysulfides	Acrylates	Epoxy resins	a-Cyanoacrylic acids	Thermoplastics	Others
Buildings	100	100	50	50	-	100	20	50	50
Interior decoration	100	50	50	50	-	50	20	50	50
Shoes and luggage	-	50	50	-	-	-	20	50	50
Sanitary materials, apparel and fiber processing	-	50	50	-	-	-	-	50	50
Paper processing and bookbinding	-	50	50	-	-	-	-	50	50
Transportation	100	100	50	50	200	100	20	50	50
Assembling	100	100	50	50	200	100	20	50	50
Packaging	100	50	50	-	-	-	-	50	50
Others	100	50	50	50	200	50	20	50	50

Note 1: MS refers to adhesives that use silane modified polymer as main materials.
Note 2: Thermoplastics refers to thermoplastic polyolefin or thermoplastic rubber.

(GB30982-2014) Table 1: Limits on harmful substances in solvent-based adhesives for buildings

Item	Limit value				
	Chloroprene adhesives	SBS adhesives	Polyurethane adhesives	Acrylate adhesives	Other adhesives
Benzene (g/kg)	≤5.0				
Toluene + xylene (g/kg)	≤200	≤80	≤150		
Toluene diisocyanate (g/kg)	-		≤10	-	
Dichloromethane (g/kg)	Total amount ≤ 5.0	≤200	-	Total amount ≤50	
1,2-dichloroethane (g/kg)		Total amount ≤5.0			
1,1,1-trichloroethane (g/kg)					
1,1,2-trichloroethane (g/kg)					
Volatile organic compounds (g/L)	≤680	≤630	≤680	≤600	≤680

(GB30982-2014) Table 2: Limits on harmful substances in water-based adhesives for buildings

Item	Limit value						
	Polyvinyl acetate series	Dimethoxymethane series	Rubber series	Polyurethane series	VAE emulsion series	Acrylate series	Others
Free formaldehyde (g/kg)	≤0.5	≤1.0	≤1.0	-	≤0.5	≤0.5	≤1.0
Volatile organic compounds (g/L)	≤100	≤150	≤150	≤100	≤100	≤100	≤150

(GB30982-2014) Table 3: Limits on harmful substances in solvent-free adhesives for buildings

Item	Limit value				
	Organic silicon series (including MS)	Polyurethane series	Polysulfide series	Epoxy series	
				Part A	Part B
Volatile organic compounds (g/L)	≤100	≤50	≤50	≤50	-
Toluene diisocyanate (g/kg)	-	≤10	-	-	-
Benzene (g/kg)	-	≤1	-	≤2	≤1
Toluene (g/kg)	-	≤1	-	-	-
Toluene + xylene (g/kg)	-	-	-	≤50	≤20

(GB19340-2014) Table 2: Limits on harmful substances in adhesives for shoes and luggage

Item	Limit value	
	Solvent-based	Water-based
Benzene	≤5.0 g/kg	-
Toluene + xylene	≤200 g/kg	-
Free toluene diisocyanate	≤10.0 g/kg	-
N-hexane	≤150 g/kg	-
1,2-dichloroethane (g/kg)	≤5.0 g/kg	
Total halogenated alkyl (including dichloromethane (g/kg), 1,2-dichloroethane (g/kg), 1,1,2-trichloroethane (g/kg), and trichloroethylene (g/kg))	≤50.0 g/kg	-
Volatile organic compounds	≤750 g/L	≤100 g/L

GB 30981-2020 Limit of harmful substances in industrial protective coatings (Effective date: December 1, 2020)
The assessment of compliance with the regulation shall be based on the original Chinese text of the latest GB, as published by the Chinese government.

■ **Scope of application**

This standard specifies the Product Classification / Requirements / Test Methods / Inspection Rules / Package Label, and the Enforcement of the Standard, concerning the acceptable limits of substances that are harmful to human body and the environment in industrial protective coatings.

■ **Requirements**

The limit of VOC content in industrial protective coatings, except special functional coatings, shall be satisfied the requirements in Tables 1, 2, 3 and 4.

Notes

"Special functional coatings" include insulation coatings, anti-fingerprint coatings for touch screens and optical plastic sheets, polytetrafluoroethylene coatings that form film by sintering at 150 deg C or higher temperature (for chemical resistance, wear resistance or lubrication), fluoro-silicon coatings for elastomers, electro silver plating coatings (radiation-solidified), labeling coatings, non-adhesive and other special functions, and protective coatings for electronic components (with special functions such as protection against acid mist, dust and moisture).

The limit of VOC content in water-based paints shall be satisfied the requirements in Table 1.
The limit of VOC content in solvent-based paints shall be satisfied the requirements in Table 2.
The limit of VOC content in solvent-free paints shall be satisfied the requirements in Table 3.
The limit of VOC content in radiation-solidified paints shall be satisfied the requirements in Table 4.
If use in more than one application is indicated on a paint product, the most stringent limit in each requirement shall be satisfied.

■ **Limit value**

Table 1: Limits on VOC content in water-based paints

Product classification			Key product type		Limit value (g/L)
Paints for mechanical equipment	Paints for engineering and agricultural machinery (including component paints)		Primer		≤300
			Middle paint		≤300
			Topcoat		≤420
			Varnish		≤420
	Paints for port machinery and chemical machinery (including component paints)		Shop primer		≤300
			Primer		≤300
			Middle paint		≤250
			Topcoat		≤300
			Varnish		≤300
	Others		Primer		≤250
			Middle paint		≤200
			Topcoat		≤300
			Varnish		≤300
Protection coatings for buildings and construction (excluding architectural wall paints)	Anticorrosion paint for metal base	One component	Alkyd resin paint		≤350
			Others	Primer	≤300
				Topcoat	≤300
				Effect pigment	≤420
		Two components	Shop primer		≤300
			Primer		≤300
			Middle paint		≤250
			Topcoat		≤300
			Effect pigment		≤420
	Concrete protection paints		Sealant primer		≤300
			Primer		≤250
			Middle paint		≤250
			Topcoat		≤300
	Others		-		≤300
Container paints			Primer		≤350
			Middle paint		≤250
			Topcoat		≤300
Packaging paints	Non-stick paints		Primer		≤480
			Middle paint		≤350
			Topcoat		≤300
	Others		Roll coating (boards)		≤480
			Spraying		≤400
Profile paints (including metal base screen wall panel paints)			Electrophoresis paint		≤250
			Fluoroplastic paint		≤350
			Others		≤300
Paints for electrical and electronic product			Primer		≤420
			Coloring		≤420
			Varnish		≤420

Table 2: Limits on VOC content in solvent-based paints

Product classification		Key product type		Limit value (g/L)
Paints for mechanical equipment	Paints for engineering and agricultural machinery (including component paints)	Primer		≤540
		Middle paint		≤540
		Topcoat		≤550
		Varnish		≤550
	Paints for port machinery and chemical machinery (including component paints)	Shop primer		≤680
		Primer	Inorganic	≤600
			Others	≤550
		Middle paint		≤500
		Topcoat		≤500
		Varnish		≤500
		Special paints (high temperature resistant paints, etc.)		≤650
	Others	Primer		≤500
		Middle paint		≤480
		Topcoat		≤550
		Varnish		≤550
Protection coatings for buildings and construction	Anticorrosion paints for metal base	Shop primer	Inorganic	≤720
			Organic	≤650
		Inorganic zinc primer		≤600
		One component paint		≤630
		Two component paint	Primer	≤500
			Middle paint	≤500
			Topcoat	≤550
			Varnish	≤580
	Concrete protection paints (including thin coat of waterproofing paints on railroad concrete bridges)	Sealant primer		≤700
		Primer		≤540
		Middle paint		≤540
		Topcoat		≤550
	Special paints (high temperature resistant paints, chemical resistant paints, binder paints, etc.)	——		≤650
	Others	——		≤550
Container paints		Shop primer	Spraying	≤700
			Roll coating	≤650
		Primer		≤550
		Middle paint		≤500
		Topcoat		≤550
Pre-coated coil materials	Fluoroplastic paints	——		≤780
	Others	Primer		≤650
		Middle paint		≤700
		Topcoat		≤600
		Varnish		≤600
Packaging paints	Non-stick paints	——		≤420
	Others	Roll coating	Coil	≤780
			Sheet	≤680
		Spraying		≤750
Profile paints (including metal base screen wall panel paints)	Fluoroplastic paints	——		≤780
	Others	Primer		≤520
		Topcoat		≤600
		Varnish		≤550
Paints for electrical and electronic product		Primer		≤600
		Coloring		≤700
		Varnish		≤650

Table 3: Limits on VOC content in solvent-free paints

Item	Limit value (g/L)
VOC content	≤100

Table 4: Limits on VOC content in radiation-solidified paints

Product classification	Painting type	Limit value (g/L)
Water-based	Spraying	≤400
Water-based	Others	≤150
Non-water-based	Spraying	≤550
	Others	≤200

Table 5: Limits on other hazardous substance content

Item		Limit value
Benzene content[a] (limited to solvent-based paints and non-water-based radiation-solidified paints), %		≤0.3
Total content of toluene and xylene (including ethylbenzene)[a] (limited to solvent-based paints and non-water-based radiation-solidified paints), %		≤35
Total halogenated hydrocarbon content[a] (limited to solvent-based paints and non-water-based radiation-solidified paints), % (limited to dichloromethane, chloroform, tetrachloromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichloropropane, 1,2,3-trichloropropane, trichloroethylene, and tetrachloroethylene)		≤1
Total polycyclic aromatic hydrocarbons[a] (limited to solvent-based paints and non-water-based radiation-solidified paints), (mg/kg) (limited to naphthalene and anthracene)		≤500
Methanol content[a] (limited to inorganic paints), %		≤1
Total content of glycol ethers and ether esters[a] (limited to water-based, solvent-based, and radiation-solidified paints), % (limited to ethylene glycol methyl ether, ethylene glycol methyl ether acetate, glycol ether, ethylene glycol ether acetate, ethylene glycol dimethyl ether, ethylene glycol diethyl ether, diethylene glycol dimethyl ether, and triethylene glycol dimethyl ether)		≤1
Heavy metal content (limited to coloring paints[b], powder paints, and alkyd resin varnish), (mg/kg)	Lead (Pb) content	≤1,000
	Cadmium (Cd) content	≤100
	Hexavalent chromium (Cr^{6}) content	≤1,000
	Mercury (Hg) content	≤1000

[a] Measuring shall be performed after mixing in accordance with the mixing ratio under the application condition as indicated on the product. If the usage amount of a component in a multi-component product is within a certain range, it shall be measured after mixing in accordance with the maximum ratio specified in the product's mixing ratio under the application condition. All items pertaining to water-based paints and water-based radiation-solidified paints do not take into account the water dilution ratio.

[b] This refers to Class 1 paints that contain pigments, constitutional pigments and dyes.

■ **Precautions and requirements for measuring**

Water-based paints and water-based radiation-solidified paints do not take into account the water dilution ratio.

For other types of paints, measuring shall be performed after mixing in accordance with the mixing ratio indicated on the product.

If the amount of a component used in a multi-component product is within a certain range, it shall be measured after mixing in accordance with the maximum ratio specified in the product's mixing ratio under the conditions of use.

GB 38507-2020 Limit of volatile organic compound (VOC) content in printing ink (Effective from April 1, 2021)
Assessment of compliance with the regulation shall be based on the original Chinese language text of the latest GB as published by the Chinese government.

■ **Scope of application**

This standard specifies the limits on VOC content in printing inks and indicates the related ink terms and Definition / Classification / Requirements / Test Methods / Package Label, and the lLst of Prohibited Solvents.

This standard does not apply to additives, diluents, and other agents that are used to adjust the performance of ink in printing machines.

Nor does this standard apply to ink cleaning agents and other products that are used in printing machines.

■ **Requirements**

The limit of volatile organic compound content in inks shall be satisfied the requirements in Table 1.

For solvents that may not be intentionally added to inks, see Table A.1.

■ **Limit value**

Table 1: Limits on volatile organic compound content in inks

Type of ink			Limit value for VOCs, %
Solvent-based ink	Gravure ink		≤75
	Flexographic ink		≤75
	Ink-jet ink		≤95
	Screen ink		≤75
Water-based ink	Gravure ink	Absorbent substrate	≤15
		Non-absorbent base material	≤30
	Flexographic ink	Absorbent substrate	≤5
		Non-absorbent base material	≤25
	Ink-jet ink		≤30
	Screen ink		≤30
Offset ink	Sheet-fed offset ink		≤3
	Cold-set web-fed ink		≤3
	Heat-set web-fed ink		≤10
Energy-curing ink	Offset ink		≤2
	Flexographic ink		≤5
	Screen ink		≤5
	Ink-jet ink		≤10
	Gravure ink		≤10
Intaglio ink			≤20

Table A.1: List of solvents that may not be intentionally added to ink

No.	Chemical substance name	CAS No.	Corresponding order in GB/T36421-2018
1	Ethylbenzene	100-41-4	62
2	Propylene oxide	75-56-9	72
3	Styrene	100-42-5	79
4	Benzene	71-43-2	84
5	Isopropyl nitrite	541-42-4	121
6	1-Butyl nitrite	544-16-1	122
7	Ethylene glycol monoethyl ether	110-80-5	510
8	Ethylene glycol ether acetate	111-15-9	511
9	Ethylene glycol monomethyl ether	109-86-4	512
10	Ethylene glycol methyl ether acetate	110-49-6	513
11	2-Nitropropane	79-46-9	529
12	N-Methyl-2-pyrrolidinone	872-50-4	542
13	Triglyme	112-49-2	637
14	Ethylene glycol dimethyl ether	110-71-4	638
15	Ethylene glycol diethyl ether	629-14-1	659
16	Toluene	108-88-3	/
17	Xylene	1330-20-7	/

GB 38508-2020 Limit of volatile organic compound content in cleaning agent (Effective date: December 1, 2020)
The assessment of compliance with the regulation shall be based on the original Chinese language text of the latest GB as published by the Chinese government.

■ **Scope of application**

This standard specifies the Product Classification / Limit Requirements for VOCs / Test Methods / Package Label in cleaning agents.
This standard applies to cleaning agents that contain VOCs produced or used in industrial production or service activities.
This standard does not apply to cleaning agents used for aerospace, the nuclear industry, the munitions industry, or the production of semiconductor integrated circuits.

■ **Requirements**

The limit of VOC content and specified VOC content in cleaning agents shall be satisfied the requirements in Table 1.
Water-based cleaning agents that satisfy the requirements in Table 1 and semi-water-based cleaning agents that satisfy the requirements in Table 2 are categorized as low-VOC content cleaning agents.

■ **Limit value**

Table 1: Limits on VOC content and specified VOC content in cleaning agents

Item	Limit value		
	Water-based cleaning agents	Semi-water-based cleaning agents	Organic solvent cleaning agents
VOC content, g/L ≤	50	300	900
Total of dichloromethane, chloroform, trichloroethylene, and tetrachloroethylene, % ≤	0.5	2	20
Formaldehyde, g/kg ≤	0.5	0.5	-
Total of benzene, toluene, xylene, and ethylbenzene,%≤	0.5	1	2
Note:"—" signifies that there is no applicable requirement.			

Table 2: Limits on low-VOC content semi-water-based cleaning agents

Item	Limit value
VOC content, g/L ≤	100
Total of dichloromethane, chloroform, trichloroethylene, and tetrachloroethylene, % ≤	0.5
Formaldehyde, g/kg ≤	0.5
Total of benzene, toluene, xylene, and ethylbenzene, % ≤	0.5

■ **Precautions and requirements for measuring**

Prepare an appropriate amount of sample measuring solution in accordance with the mixing ratio under the conditions of use indicated on the product instruction or packaging/labeling of the cleaning agent, and properly seal and preserve the solution. If dilution is required, perform dilution in accordance with the specified ratio.
If a range for the dilution ratio is specified, perform dilution at the mixing ratio with the minimum amount of diluent and the maximum amount of cleaning agent.
If the mixing ratio under the conditions of use of the cleaning agent product is not clarified, use the product as the sample measuring solution.

GB 24409-2020 Limit of harmful substances in vehicle coatings (effective from December 1, 2020).
The assessment of compliance with the regulation shall be based on the original Chinese language text of the latest GB as published by the Chinese government.

■ **Scope of application**

This standard specifies the Product Classification / Requirements / Test Methods / Inspection Rules / Package Label, and the Enforcement of the Standard concerning the acceptable limits of substances that are harmful to the human body and the environment in vehicle coatings.

This standard applies to the genuine paints of automobiles, automobile repair paints, paints for track traffic vehicles, paints for motorbikes (including electric motorbikes), paints for bicycles (including electric bicycles), paints for other vehicles (such as special automobiles, low-speed automobiles and trailers), and paints for vehicle parts, excluding putty.

This standard does not apply to paints for tractor transport units, paints for wheel-only machinery vehicles, and paints for military vehicles.

■ **Requirements**

The limit of VOC content in vehicle coatings, except special functional coatings, shall satisfy the requirements in Tables 1, 2, and 3.

Notes

"Special functional coatings" include polypropylene base-layer primers (including potassium permanganate solution), wash primers, auxiliary agents (diluents) for removing coating marks on the borders of old and new coating films, repair middle paint used in the case of perforation in electrodeposition coatings, chipping resistant coating (excluding coatings that have auxiliary chipping resistance), heat resistant coatings used in automobile engine, exhaust pipe and other parts, polytetrafluoroethylene coatings that form film by sintering at 150 deg C or higher temperature (with chemical resistance, wear resistance, lubrication, non-adhesive and other special functions), lubricant coatings for elastomers, electro silver plating coatings, spray can coatings for repair, and labeling coatings.

The limit of non-VOC hazardous substance content in vehicle coatings shall be satisfied the requirements in Table 4.

■ **Limit value**

Table 1: Limit requirements for VOC content in water-based paints

Product classification	Product type		Limit (g/L)
Genuine paints for automobiles (passenger automobiles and cargo automobiles)	Electrodeposition primer		≤250
	Middle paint		≤350
	Basecoat		≤530
	Solid color paints without the need for a clear coat		≤420
Genuine paints for automobiles [large passenger cars (automobiles)]	Electrodeposition primer		≤250
	Other primers		≤420
	Middle paint		≤300
	Basecoat		≤420
	Solid color paints without the need for a clear coat		≤420
	Clear coat		≤420
Repair paints for automobiles	Basecoat		≤420
	Solid color paints without the need for a clear coat		≤420
Paints for track traffic vehicles [power distributed train, passenger cars (train cars), urban track traffic vehicles, traction locomotives]	Primer		≤250
	Middle paint		≤300
	Basecoat		≤420
	Solid color paints without the need for a clear coat		≤420
	Clear coat		≤420
Paints for track traffic vehicles (cargo cars)	Primer		≤250
	Topcoat		≤420
Paints for motorbikes (including electric motorbikes), paints for bicycles (including electric bicycles), and paints for vehicle parts	Paints for exterior plastic parts	Primer	≤450
		Coloring paint	≤530
	Paints for metal parts	Primer	≤350
		Coloring paint	≤480
		Clear coat	≤420
	Paints for interior parts	Primer	≤450
		Basecoat	≤530
		Solid color paints without the need for a clear coat	≤420
		Clear coat	≤420
Paints for other vehicles (such as special automobiles, low-speed automobiles and trailers)	Primer		≤420
	Basecoat		≤420
	Solid color paints without the need for a clear coat		≤420
	Clear coat		≤420

Table 2: Limit requirements for VOC content in solvent-based paints

Product classification	Product type			Limit (g/L)
Genuine paints for automobiles (passenger cars)	Middle paint			≤530
	Basecoat			≤750
	Solid color paints without the need for a clear coat			≤550
	Clear coat	Matte clear coat [gloss (60 degrees) ≤ 60 unit value]		≤600
		Others	One-solution type	≤550
			Two-solution type	≤500
Genuine paints for cargo automobiles and paints for parts	Primer	One-solution type		≤700
		Two-solution type		≤540
	Middle paint			≤500
	Basecoat	Solid color paints		≤680
		Effect pigment paints	Highly decorative	≤840
			Others	≤750
	Solid color paints without the need for a clear coat			≤550
	Clear coat			≤500
Genuine paints for automobiles [large passenger cars (automobiles)]	Primer			≤540
	Middle paint			≤540
	Basecoat			≤770
	Solid color paints without the need for a clear coat			≤550
	Clear coat			≤480
Repair paints for automobiles	Primer			≤580
	Middle paint			≤560
	Basecoat			≤770
	Solid color paints without the need for a clear coat			≤580
	Clear coat	Matte clear coat [gloss (60 degrees) ≤ 60 unit value]		≤630
		Others		≤480
Paints for track traffic vehicles [power distributed train, passenger cars (train cars), urban track traffic vehicles, traction locomotives]	Primer			≤540
	Middle paint			≤540
	Basecoat			≤770
	Solid color paints without the need for a clear coat			≤550
	Clear coat			≤560
Paints for track traffic vehicles (cargo cars)	Primer			≤540
	Topcoat			≤550
Paints for motorbikes (including electric motorbikes), paints for bicycles (including electric bicycles), and paints for vehicle parts	Paints for exterior plastic parts	Primer		≤700
		Coloring paint		≤770
		Clear coat	Matte clear coat [gloss (60 degrees) ≤ 60 unit value]	≤650
			Others	≤560
	Paints for metal parts	Primer		≤670
		Coloring paint		≤680
		Effect pigment paint		≤750
		Clear coat	Matte clear coat [gloss (60 degrees) ≤ 60 unit value]	≤600
			Others: One-solution type	≤580
			Others: Two-solution type	≤480
	Paints for interior parts	Primer		≤670
		Coloring paint		≤770
		Clear coat	Matte clear coat [gloss (60 degrees) ≤ 60 unit value]	≤630
		Others		≤560
Paints for other vehicles (such as special automobiles, low-speed automobiles and trailers)	Primer			≤540
	Middle paint			≤540
	Basecoat			≤770
	Solid color paints without the need for a clear coat			≤580
	Clear coat			≤560

Table 3: Limit requirements for VOC content in radiation-solidified paints

Product classification	Product type	Limit (g/L)
Water-based	Spraying	≤400
	Others	≤150
Non-water-based	Spraying	≤550
	Others	≤200

Table 4: Limit requirements on other hazardous substance content

Item		Limit				
		Water-based paints	Solvent-based paints	Radiation-solidified paints		Powder paints
				Water-based	Non-water-based	
Benzene content[a], %≤		-	0.3	-	0.1	-
Total content of toluene and xylene (including ethylbenzene)[a], % ≤		-	30	-	1	-
Total content of BTEX[a], % ≤ [Limited to benzene, toluene, and xylene (including ethylbenzene)]		1	-	1	-	-
Total content of halogenated alkyl[a], % ≤ (limited to dichloromethane, chloroform, carbon tetrachloride, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichloropropane, 1,2,3-trichloropropane, trichloroethylene, and tetrachloroethylene)		-	0.1	-	0.1	-
Total content of glycol ethers and ether esters[a], (mg/kg) ≤ (limited to ethylene glycol monomethyl ether, ethylene glycol monomethyl ether acetate, ethylene glycol monoethyl ether, acetic acid 2-ethoxyethyl, ethylene glycol dimethyl ether, 1,2-diethoxyethane, glycol ether dimethyl ether, and triethylene glycol dimethyl ether)		300				-
Heavy metal content, (mg/kg) ≤ (limited to coloring paints[b])	Lead (Pb) content	1,000				
	Cadmium (Cd) content	100				
	Hexavalent chromium (Cr6+) content	1,000				
	Mercury (Hg) content	1,000				

[a] Measuring shall be performed after mixing in accordance with the mixing ratio under the conditions of use as indicated on the product. If the amount of a component used in a multi-component product is within a certain range, it shall be measured after mixing in accordance with the maximum ratio specified in the product's mixing ratio under the conditions of use. All items pertaining to water-based paints and water-based radiation-solidified paints do not take into account the water dilution ratio.

[b] This refers to paints that contain pigments, constitutional pigments and dyes.

GB 18581-2020 Limit of hazardous substances in Paints for Wood Appliances (Effective date: December 1, 2020)
The assessment of compliance with the resulation shall be based on the original Chinese language text of the latest GB as published by the Chinese government.

■ Scope of application

This standard specifies the Product Classification / Requirements / Test Methods / Inspection Rules / Package Label / and the Enforcement of the Standard, regarding the allowable limits of hazardous substances to the human body and the environment in paints for wooden appliances.

It is applied to paints for various wood appliances including putty / undercoat / topcoat used for painting performed on-site and factory, except special functional paints such as paint that leaves grain / Lasure (Penetrating colored paint) (Original: Lacquer lacquer) / Cross-linked paint / Wood colorant.

※ Lasure(Original: Lacquer lacquer): "GB /T 5206 2015 colored paints and varnishes terminology and definitions" is defined as follows.

Solvent-based or Water-based paints containing small amounts of suitable Pigments and / or Extender Pigments. Form a transparent or translucent paint that has the performance of both or either of the decoration and protection of the substrate.

■ Requirements

The contents of hazardous substances in the paint for wooden appliances shall be met the requirements in Table 1.
Solvent-based paints for wooden appliances containing nitrocelluloses shall not be used for interior decoration or interior work after the date of enforcement of this standard.

■ Limit value

Table 1: Limit requirements for Hazardous Substance Limits

<table>
<tr><th colspan="2" rowspan="3">Item</th><th colspan="9">Limit value</th></tr>
<tr><th colspan="6">Solvent-based paint (including putty) [a]</th><th colspan="2">Water-based paints (including pate) [b]</th><th colspan="2">Radiation curable paint (including putty)</th><th rowspan="2">Powder paint</th></tr>
<tr><th>Polyurethane system</th><th>Nitrocellulose (limited to use in industrial painting)</th><th>Alkyd system</th><th>Unsaturated polyester system</th><th colspan="2">Colored paint</th><th>Varnish</th><th>Aquatic [b]</th><th>Non-water [a]</th></tr>
<tr><td rowspan="4">VOC Content</td><td rowspan="3">Paint/(g/L) ≦</td><td>Top coating [gloss] (60°) ≧80 Value]: 550</td><td rowspan="3">700</td><td rowspan="3">450</td><td rowspan="3">420</td><td rowspan="3" colspan="2">250</td><td rowspan="3">300</td><td rowspan="3">250</td><td rowspan="3">420</td><td rowspan="4">-</td></tr>
<tr><td>Top coating [gloss] (60°) <80 Position value: 650</td></tr>
<tr><td>Undercoat: 600</td></tr>
<tr><td>Solvent-based putty (g/L) ≦</td><td colspan="3">400</td><td>300</td><td colspan="3">-</td><td colspan="2">-</td></tr>
<tr><td>Aqueous and Radiation cured putty (g/kg) ≦</td><td colspan="5">-</td><td colspan="3">60</td><td colspan="2">60</td></tr>
<tr><td colspan="2">Formaldehyde content / (mg/kg) ≦</td><td colspan="5">-</td><td colspan="3">100</td><td>100</td><td>-</td><td>-</td></tr>
<tr><td colspan="2">Total lead (Pb) content/(mg/kg) ≦ (limited to colored paint [c] , putty and alkyd varnishes)</td><td colspan="10">90</td></tr>
<tr><td rowspan="3">Content of water-soluble heavy metal/(mg/kg) ≦(limited to colored paint [c], putty and alkyd varnishes)</td><td>Cadmium (Cd) Content</td><td colspan="10">75</td></tr>
<tr><td>Chromium (Cr) Content</td><td colspan="10">60</td></tr>
<tr><td>Mercury (Hg) Content</td><td colspan="10">60</td></tr>
<tr><td colspan="2">Total glycol ether and ether ester content [a] (mg/kg) ≦ (limited to ethylene glycol monomethyl ether, ethylene glycol monomethyl ether acetate, ethylene glycol monoethyl ether, acetic acid 2 ethoxyethyl, ethylene glycol dimethyl ether, 1,2 diethoxyethane, glycol ether dimethyl ether, triethylene glycol dimethyl ether)</td><td colspan="9">300</td><td>-</td></tr>
<tr><td colspan="2">Benzene content /% ≦</td><td colspan="5">0.1</td><td colspan="3">-</td><td>-</td><td>0.1</td><td>-</td></tr>
</table>

Item	Limit value								
	Solvent-based paint (including putty) [a]				Water-based paints (including pate) b		Radiation curable paint (including putty)		Powder paint
	Polyurethane system	Nitrocellulose (limited to use in industrial painting)	Alkyd system	Unsaturated polyester system	Colored paint	Varnish	Aquatic [b]	Non-water [a]	
Total content of toluene and xylene (including ethylbenzene) /% ≦	20	20	5	10	-		-	5	-
Total BTEX content/(mg/kg) [Limited to benzene, toluene, and xylene (including ethylbenzene)]	-				250		250	-	-
Polycyclic Aromatic Hydrocarbon Total content/(mg/kg) ≦ (Limited to naphthalene and anthracene)	200				-		-	200	-
Free diisocyanate Total content [d] /% ≦ [Limited toToluene diisocyanate (TDI), hexamethylene diisocyanate (HDI)]	Moisture curing type: 0.4 Other: 0.2	-			-		-		-
Methanol Content /% ≦	-	0.3	-	-	-	-	-	0.3	-
Alkyl halide Total Content/% ≦ (Limited to dichloromethane, chloroform, carbon tetrachloride, 1,1 dichloroethane, 1,2 dichloroethane, 1,1,1 trichloroethane, 1,1,2 trichloroethane, 1,2 dichloropropane, 1,2,3 trichloropropane, trichloroethylene, and tetrachloroethylene)	0.1				-		-	0.1	-
Phthalate ester Total content /% ≦ [Limited to dibutyl phthalate (DBP), benzylbutyl phthalate (BBP), bis 2 ethylhexyl phthalate (DEHP),-n-octyl phthalate (DNOP), diundecyl phthalate (DINP), and diisodecyl phthalate (DIDP)]	-	0.2	-	-	-		-		-
Total Alkylphenol Ethoxylate Content (mg/kg) ≦ {Octylphenol Ethoxylate [C8H17C6H4-(OC2H4)-n-OH, abbreviation: OPnEO] And Nonylphenol ethoxylate [C9H19C6H4-(OC2H4)nOH, abbreviated as NPnEO], Limited to n=2 to 16}	-				1,000		1,000	-	-

[a] Measure after mixing according to the construction mixture ratio under the conditions of use specified on the product.
If the amount of a component used in multiple components is set within a certain range, measure after mixing according to the maximum ratio specified by the construction compounding ratio in the product usage conditions.

[b] No water dilution shall not be taken into account for all items of paint products.
For all items of "Creamy Putty" and "Powdered Putty diluted only with water", the dilution ratio of water shall not be not taken into consideration.
For Powdered Putty (excluding Powdered Putty diluted only with water), measure directly for powder in the item of "Total Lead" and "Water-Soluble Heavy Metals". For other items, measure after mixing the powder with other liquids such as water and adhesive according to the construction compounding ratio under the conditions of use specified on the product.
If the construction blending ratio under the usage conditions is set within a certain range, measure after mixing at the minimum usage amount for water and the maximum usage amount for other liquids such as adhesives.

[c] A paint containing a pigment, an extender pigment, and a dye shall be shown.

[d] For "polyurethane-based paints" and "putties", in the case of "specified dilution ratio", "two-component type" or "multi-component type", after measuring the content in the curing agent (including Free Diisocyanate Prepolymer), calculate according to the minimum dilution ratio at the construction mixing ratio under the conditions of use specified on the product.
If the amount of diluent used is set within a certain range, calculate according to the specified minimum dilution ratio in the construction mixing ratio under the product usage conditions.
If the amount of hardener used is set within a certain range, calculate the maximum ratio specified by the construction mixing ratio under the conditions of use of the product.

GB 18582-2020 Limit of harmful substances in Wall Paint for Building (Date of Restriction: December 1, 2020)
Judgment of compliance should be made in the latest GB Chinese texts published by the Chinese authorities.

■ Scope of Application

It stipulates Product Classification / Requirements / Test Methods / Inspection Rules / Package Label and the Enforcement of the Standards regarding the allowable limits of substances harmful to the human body and the environment in building wall paints.

It is applied to various building wall paints for decoration and protection of the inner and outer surfaces of buildings based on cement and other non-metal materials (excluding wood materials) in on-site painting and factory painting.

■ Requirements

The limit amount of hazardous substances in water-based wall paint shall be met the requirements of Table 1.

The limit amount of hazardous substances in cosmetic plate paint shall be met the requirement of Table 2.

Solvent-based building wall paints shall not be used in on-site painting after the date of the Enforcement of this Standard.

■ Limit value

Table 1: Limit Requirements for Hazardous Substance Limits in Aqueous Wall Paints

Item		Limit value			
		Inner wall paint [a]	Exterior wall paint [a]		Putty [b]
			Effects Pigment-containing system	Other types	
VOC content ≦		80 (g/L)	120 (g/L)	100 (g/L)	10 (g/kg)
Formaldehyde content / (mg/kg) ≦		50			
Total BTEX content/(mg/kg) ≦ [Limited to benzene, toluene, and xylene (including ethylbenzene)]		100			
Total Lead (Pb) Content/(mg/kg) ≦ (Limited to colored paints and putties)		90			
Content of water-soluble heavy metal/(mg/kg) ≦ (Limited to colored paints and putties)	Cadmium (Cd) Content	75			
	Chromium (Cr) Content	60			
	Mercury (Hg) Content	60			
Total Alkylphenol Ethoxylate Content (mg/kg) ≦ {Octylphenol Ethoxylate [C8H17-C6H4-(OC2H4)nOH, abbreviated as OPnEO] And Nonylphenol ethoxylate [C9H19-C6H4-(OC2H4)nOH, abbreviated as NPnEO], Limited to n=2 to 16}		1,000			–

[a] No water dilution ratio shall not be taken into account for all items of paint products.

[b] For all items of "Creamy Putty" and "Powdered Putty diluted only with water", the dilution ratio of water shall not be not taken into consideration.
For Powdered Putty (excluding Powdered Putty diluted only with water), measure directly for powder in the item of "Total Lead" and "Water-Soluble Heavy Metals". For other items, measure after mixing the powder with other liquids such as water and adhesive according to the construction compounding ratio under the conditions of use specified on the product.
If the construction blending ratio under the usage conditions is set within a certain range, measure after mixing at the minimum usage amount for water and the maximum usage amount for other liquids such as adhesives.

Table 2: Limit Requirements for Hazardous Substance Limits in Coating Paints

Item		Limit value			
		Water-based decorative paint [a]		Solvent-based decorative paint [b]	
		Synthetic resin Emulsion system	Other types	Effect pigment containing system	Other types
VO content (g/L) ≦		120	250	760	580
Formaldehyde content ≦ / (mg/kg)		50		-	
Total lead (Pb) content/(mg/kg) ≦ (limited to colored paints)		90			
Content of water-soluble heavy metal/(mg/kg) ≦ (limited to colored paints)	Cadmium (Cd) Content	75			
	Chromium (Cr) Content	60			
	Mercury (Hg) Content	60			
Total glycol ether and ether ester content (mg/kg) ≦ (Ethylene glycol monomethyl ether, ethylene glycol monomethyl ether acetate, ethylene glycol monoethyl ether, 2-ethoxyethyl acetate, ethylene glycol dimethyl ether, 1,2-diethoxyethane, glycol ether dimethyl ether Limited to l, triethylene glycol dimethyl ether)		300			
Total alkyl halide content /% ≦ (limited to dichloromethane, chloroform, carbon tetrachloride, 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,2-dichloropropane, 1,2,3-trichloropropane, trichloroethylene, and tetrachloroethylene)		–		0.1	
Benzene content /% ≦		–		0.3	
Total content of toluene and xylene (including ethylbenzene) /% ≦		–		20	

[a] No water dilution ratio shall not be taken into account for all items of paint products for water-based decorative boards.
[b] All items of paint for solvent-based decorative boards shall be measured after mixing according to the construction mixing ratio under the conditions of use specified in the product.
If the amount of a certain ingredient used in multiple ingredients is set within a certain range, it shall be measured after mixing according to the maximum ratio specified by the Construction Compound Ratio in the conditions of use of the product.

(Substances Excluded from Application)

№	Substance Group	Chemical Substance Group	Applications, Applications, and Targets
1	A05	Cadmium / Cadmium Compounds	・Cadmium and its compounds in electrical contacts.（Valid until July 21, 2024） ・Cadmium in filter glasses and glasses used for reflectance standards ・Cadmium in striking optical filter glass types; excluding applications falling under point 39 of EU RoHS Annex ・Cadmium in glazes used for reflectance standards
2	A09	Lead / Lead Compounds	・Lead in glass of fluorescent tubes not exceeding 0.2% by weight.（Valid until July 21, 2021） ・Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight.（Valid until July 21, 2024） ・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. ・Lead as an alloying element in aluminium containing up to 0.4% lead by weight. (Valid until July 21, 2024) ・Lead as an alloying element in aluminium containing up to 0.4% lead by weight, provided it stems from lead-bearing aluminium scrap recycling. ・Lead as an alloying element in aluminium for machining purposes with a lead content up to 0.4% by weight. ・Copper alloy containing up to 4% lead by weight.(Valid until July 21, 2024) ・Lead in high melting temperature type solders. (i.e. lead- based alloys containing 85% by weight or more lead)(Valid until July 21, 2024) ・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.(Valid until July ・Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher.(Valid until July 21, 2024) ・Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors.(Valid until July 21, 2021) ・Lead in white glasses used for optical applications. ・Lead in filter glasses and glasses used for reflectance standards. ・Lead in ion coloured optical filter glass types. ・Lead in glazes used for reflectance standards. ・Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages.(Valid until July 21, 2024) ・Lead in cermet-based trimmer potentiometer elements.(Valid until July 21, 2024)
3	A10	Mercury / Mercury Compounds	・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.（Valid until July 21, 2021） ・Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes Medium length (> 500 mm and ≤ 1 500 mm) not exceeding (per lamp): 5 mg.（Valid until July 21, 2021） ・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.（Valid until July 21, 2021）
4	B10	Fluorinated Greenhouse Gases (PFCs, SF6, HFCs)	・SF6 incorporated into surge absorber in power unit for projector.
5	*	Perfluorooctanoic acid (PFOA)	・photographic coatings applied to films. ・photolithography or etch processes in semiconductor manufacturing.(Valid until December 3, 2025)
6	A23	Dibutyltin Compound (DBT)	・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)	・Binder for resins used for paints, inks, coating agents, adhesives etc.

4. Revision record

Version	Revision Dates	Contents of Revision
9	1/Oct/2019	Individualize to three language (Japanese / English / Chinese). Changes due to revision of REACH Regulation (Related to PFOA).
10	6/Jan/2020	Changes due to revision of REACH Regulation (Related to Phthalic Acid Esters).
11	1/Oct/2020	Review due to revision of laws and regulations {United States Toxic Substances Control (No.40), EU REACH Regulation (CMR substances in textile products) (No.41), Chinese National Standards (No.42)}. Review of exemptions.