

HORIBA Group Banned Chemical Substances Standard

The 5th Edition

March 19, 2018
HORIBA, Ltd.

Revision History

Revised on	Revised content
4 January 2013 The 2 nd Edition	The 2 substances added: - (8) fluorinated greenhouse gases, for EU Regulations and Kyoto Protocol; - (20) polychlorinated terphenyls, for Restrictions by Annex XVII, REACH.
6 January 2014 The 3 rd Edition	The following substance added: (26) cobalt chloride (for use as silica gel and desiccant agent) Reason: To respond to domestic and international regulations and demands of the market
1 July 2017 The 4 th edition	The 4 substances added:
16 October 2017 The 4.1 edition	The date July 1 st 2017 is added to 'Time to Banned Use' of the 4 substances added as of July 1 st 2017.
19 March 2018 The 5 th edition	The following substance update (21) The number of atoms of Polychlorinated naphthalenes is changed from 3 to 2. The 3 substances added: (31) Hexabromocyclododecane ; HBCDD; (32) PFOA - perfluorooctanoic acid (33) Hexachlorobenzene The section name of issuing this document, written in the last page, is changed.

Banned chemical substances listed in HORIBA Group Green Procurement

Components and materials delivered to HORIBA Group and the products of HORIBA Group must be guaranteed that the contamination of each chemical substance is less than the values of each listed below.

№	Substance/Category	Examples of CAS No	Examples of Substances	Control Level	Reference laws	Examples of Use	Time to banned use
1	Asbestos	-		Intentional use banned	L1	Brake linings/pads, Insulator, filler, pigment,paint, talc,	Immediate
2	Azocolourants and azodyes which form certain aromatic amines (*1)	92-67-1 92-87-5 95-69-2 91-59-8 97-56-3 99-55-8 106-47-8 615-05-4 101-77-9 91-94-1 119-90-4 119-93-7 838-88-0 120-71-8 101-14-4 101-80-4 139-65-1 95-53-4 95-80-7 137-17-7 90-04-0 60-09-3	4-aminobiphenyl Benzidine 4-chloro-o-toluidine 2-naphthylamine o-aminoazotoluene 5-Nitro-o-toluidine 4-chloroaniline 2,4-diaminoanisole 4,4'-methylenedianiline 3,3'-dichlorobenzidine 3,3'-dimethoxybenzidine 3,3'-Dimethylbenzidine 4,4'-methylenedi-o-toluidine 6-methoxy-m-toluidine 4,4'-Methylene-bis-(2-chloroaniline) 4,4'-Oxydianiline 4,4'-Diaminodiphenylsulfide o-toluidine 4-methyl-m-phenylenediamine 2,4,5-trimethylaniline o-anisidine 4-aminoazobenzene	0.003% by weight (30 ppm) of the finished textile/leather product	L2	Pigment, dyes, colorants	Immediate

No	Substance/Category		Examples of CAS No	Examples of Substances	Control Level	Ref. laws	Examples of Use	Time to banned use		
3	Cadmium / cadmium compounds	All, except substances below	10108-64-2 10124-36-4 1306-19-0 1306-23-6 31119-53-6 7440-43-9	Cadmium chloride Cadmium sulphate Cadmium oxide (non-pyrophoric) Cadmium sulphide Cadmium sulphate Cadmium (non-pyrophoric) Cadmium fluoride (CdF ₂) Others	0.01% by weight (100 ppm) of cadmium in homogeneous materials	L3	Pigment, anti-corrosion surface treatment, optical glass, stabilizer, plating, fluorescent lights, electrode, solder, electric contact, contact point, zinc plating, Stabilizer for PVC	Immediate		
		Packaging Material (*5)	7790-79-6 -		Less than 100ppm				L4	Packaging Material
		Batteries (*2)	-		0.0005% by weight (5 ppm) of cadmium in battery				L5	NiCd accumulators
4	Chromium VI compounds	All, except substances below	7738-94-5 7775-11-3 7778-50-9 7789-00-6 7789-09-5	Chromic acid Sodium chromate Potassium dichromate Potassium chromate Ammonium dichromate Others	0.1% by weight (1 000 ppm) of chromium (VI) in homogeneous materials	L3	Pigment, paint, ink, catalyst, plating, anticorrosion surface treatment, dye	Immediate		
		Packaging Material (*5)	-		Less than 100ppm				L4	Packaging Material
5	Dibutyltin (DBT) compounds		683-18-1 -	Dibutyltin dichloride (DBTC) Others	0.1% by weight (1 000 ppm) of tin in a material	L2	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	Immediate		
6	Dioctyltin (DOT) compounds	(a) textile and leather articles intended to come into contact with the skin,	15571-58-1 -	Dioctyltin bis(2-ethylhexyl thioglycolate); DOTE Others	0.1% by weight (1 000 ppm) of tin in a material	L2	Stabilizer for PVC, curing catalyst for silicone resin and urethane resin	Immediate		
		(b) childcare articles	-							
		(c) two-component room temperature vulcanization molding kits (RTV-2 molding kits)	-							

No	Substance/Category	CAS No	Examples of Substances	Control Level	Ref. laws	Examples of Use	To be banned
7	Dimethyl fumarate	624-49-7	dimethylfumarate	0.00001% by weight (0.1 ppm) in a material	L6	Biocide and mold treatment of electronic leather seats, including recliners and massage chairs	Immediate
8	Fluorinated greenhouse gases (PFCs, SF6 and HFCs)	HFCs	HFC-23	Intentional use banned	L7	Refrigerant, blowing agent, extinguishant, cleaning agent, insulator, caustic gas	Immediate
			HFC-32				
			HFC-41				
			HFC-125				
			HFC-134				
			HFC-134a				
			HFC-143				
			HFC-143a				
			HFC-152				
			HFC-152a				
			HFC-161				
			HFC-227ea				
			HFC-236cb				
			HFC-236ea				
			HFC-236fa				
		HFC-245ca					
		HFC-245fa					
		HFC-365 mfc					
		HFC-43-10 mee					
		PFCs	PFC-14				
			PFC-116				
PFC-218							
PFC-3-1-10							
PFC-4-1-12							
PFC-5-1-14							
PFC-c-318							
SF 6	Sulfur hexafluoride (SF6)						

No	Substance/Category		Examples of CAS No	Examples of Substances	Control Level	Ref. law	Examples of Use	To be banned
9	Formaldehyde	Composite wood (plywood, particle board, medium density fiberboard), products or components (*4)	50-00-0	Formaldehyde	Intentional use banned	L8	Stereo cabinets, kiosk enclosures	Immediate
10	Lead / lead compounds	All, except substances below	10099-74-8	Lead(II) nitrate; Lead nitrate	0.1% by weight (1 000 ppm) of lead in homogeneous materials	L3	Rubber hardener, pigment, paint, lubricant, plastic stabilizer, free-machining alloy, free-cutting steels, optical materials, X-ray shielding in CRT glass, solder materials, curing agent, vulcanizing agent	Immediate
			11120-22-2	Silicic acid, lead salt; Lead silicate				
			12036-76-9	Lead oxide sulfate (Pb2O(SO4))				
			12060-00-3	Lead titanate				
			12065-90-6	Lead oxide sulfate (Pb5O4(SO4))				
			12141-20-7	Lead oxide phosphonate (Pb3O2(HPO3))				
			12202-17-4	Tetralead trioxide sulphate				
			12578-12-0	Dioxo(distearato)trilead				
			12626-81-2	Lead titanium zirconium Trioxide				
			1314-41-6	Trilead tetraoxide				
			1317-36-8	Lead(II) oxide; Lead oxide (PbO)				
			1319-46-6	Dicarbonato(dihydroxy)trilead				
			13424-46-9	Lead diazide; lead azide				
			1344-37-2	C.I. Pigment Yellow 34; Lead chromate				
			13814-96-5	Lead fluoborate				
			15245-44-0	Lead(II) 2,4,6-trinitrobenzene-1,3-diolate				
		Packaging Material (*5)	17570-76-2	Lead(II) methanesulphonate	Less than 100ppm	L4	Packaging Material	Immediate
			20837-86-9	Cyanamide, lead(2+) salt (1:1)				
			301-04-2	Lead di(acetate)				
		Cables/cords with thermoset or thermoplastic coatings	51404-69-4	Acetic acid, lead salt, basic	0.03% by weight (300 ppm) of lead in surface coating	L9	Pigment, paint, stabilizer, colorant	Immediate
			62229-08-7	Sulfurous acid, lead salt, dibasic				
			6477-64-1	Lead dipicrate				
			68784-75-8	Silicic acid (H2Si2O5), barium salt (1:1), lead-doped				
		Batteries (*2)	69011-06-9	Lead dioxide phthalate; Lead, [1,2-benzenedicarboxylato(2-)]dioxotri-	0.004% by weight (40 ppm) of lead in battery	L10	Zinc carbon batteries, alkaline button cells	Immediate
			91031-62-8	Fatty acids, C16-18, lead salts				
			-	Others				

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11	Mercury /mercury compounds	All, except substances below	7439-97-6 7546-30-7 7783-35-9 10045-94-0 51595-71-2	Mercury Mercury chloride Mercury sulphate Mercury (II) nitrate Mercury sulfide (Hg ₂ S) Others	Intentionally added or 0.1% (1 000 ppm) of mercury in homogeneous material	L3	Fluorescent bulb, contact point material, pigment, anti-corrosion, switches, antibacterial treatment	Im-mediate
		Packaging Material (*5)	-		Less than 100ppm	L4	Packaging Material	
		Batteries (*2)	-		0.0001% by weight (1 ppm) of mercury	L11	Silver-oxide button cells, alkaline batteries, zinc carbon batteries	
12	Nickel (*6)	All, where prolonged skin contact is expected	7440-02-0	Nickel	Intentional use banned	L2	Stainless steel, plating; example application for prolonged skin contact is headphone	Im-mediate
13	Ozone depleting substances	CFCs	-	-	Intentional use banned	L12	Refrigerant, foaming agent, extinguishant, solvent cleaner	Im-mediate
		Halons	-	-				
			56-23-5	Tetrachloromethane				
			71-55-6	1,1,1-trichloroethane				
		HCFCs	-	-				
		HBFCs	-	-				
		-	74-97-5	Bromochloromethane				
		-	74-83-9	Bromomethane				
	-	Others listed in the Annex A, B, C and E of Montreal Protocol						
14	Perchlorates	7791-03-9 -	Lithium Perchlorate Others	0.0000006% by weight (0.006 ppm) of the product	L13	Coin cell batteries	Im-mediate	
15	Perfluorooctane sulfonate (PFOS) (*3)	-	-	Intentionally added or 0.1% by weight (1000 ppm) in material	L14, L2	Antistatic agent for films and plastics	Im-mediate	

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16	Phenol,2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)	3846-71-7	Phenol, 2-(2H-benzotriazol-2-yl)-4,6-bis(1,1-dimethylethyl)-	Intentional use banned	L14	Adhesives, paints, printing inks, plastics, inked ribbons, putty, caulking or sealing fillers	Immediate
17	Polybrominated biphenyls (PBBs)	-	-	0.1% by weight (1 000 ppm) in homogeneous material	L3	Flame retardant	Immediate
18	Polybrominated diphenylethers (PBDEs)	1163-19-5 -	Decabromodiphenyl ether (decabromodiphenyl ether; DecaBDE) Others	Intentionally added or 0.1% by weight (1 000 ppm) in homogeneous material	L3	Flame retardant	Immediate
19	Polychlorinated biphenyls (PCBs) and specific substitutes	- 76253-60-6 - 99688-47-8	PCBs Monomethyl-tetrachlorodiphenyl methane Trade name: Ugilec 141 Monomethyl-dibromo-diphenyl methane Ugilec 121 Monomethyl-dibromo-diphenyl methane Trade name: DBBT	Intentional use banned	L14, L2	Insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution; plasticizers, flame retardants, dielectric sealants	Immediate
20	polychlorinated terphenyls (PCTs)	61788-33-8	Polychlorinated terphenyls(PCTs)	0.005% by weight (50 ppm) in material	L2	Insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution; plasticizers, flame retardants, coatings for electrical wire and cable, dielectric sealants	Immediate
21	Polychlorinated naphthalenes (more than 2 chlorine atoms)	-	-	Intentional use banned	L14	Lubricant, paint, stabilizer (electric characteristic, flame-resistant, water-resistant) insulator, flame retardant	Immediate
22	Radioactive substances	-	-	Intentional use banned	L15	Optical properties (thorium), measuring devices, gauges, detector	Immediate

№	Substance/Category		Examples of CAS No	Examples of Substances	Control Level	Ref. law	Examples of Use	To be banned
23	Shortchain chlorinated paraffins (C10 - C13)		85535-84-8	Alkanes, C10-13, chloro	0.1% by weight (1 000 ppm) of the product	L2	Plasticizer for PVC, flame retardant	Immediate
24	Tri-substituted organostannic compounds		-	-	Intentionally added or 0.1% by weight (1 000 ppm) of tin in a material	L2	Stabilizer, antioxidant, antibacterial and antifungal agents, antifoulant, antiseptic, paint, pigment, antistaining	Immediate
25	Tributyl tin oxide (TBTO)		56-35-9	Tributyltin oxide (TBTO)	Intentionally added or 0.1% by weight (1 000 ppm) of the product	L14	Antiseptic, antifungal agent, paint, pigment, antistaining, refrigerant, foaming agent, extinguishant, solvent cleaner	Immediate
26	cobalt chloride	silica gel, desiccant	7646-79-9	Cobalt(II) dichloride	0.1% by weight (1,000ppm) of the product	L2	Moisture content indicator	Immediate
27	Benzyl butyl phthalate (BBP)		85-68-7	Benzyl butyl phthalate; BBP	0.1% by weight (1 000 ppm) in homogeneous material	L2	Polyvinyl chloride sheet, adhesive agent, seal component. coating material	July 1st 2019
28	Dibutyl phthalate(DBP)		84-74-2	Dibutyl phthalate; DBP	0.1% by weight (1 000 ppm) in homogeneous material	L2	cable, plug, rubber, tube, seal material, adhesive agent, antiskid coating, coating material	July 1st 2019
29	Bis(2-ethylhexyl)phthalate(DEHP)		117-81-7	Bis(2-ethylhexyl) phthalate; Di(2-ethylhexyl)phthalate; DEHP	0.1% by weight (1 000 ppm) in homogeneous material	L2	polyvinyl chloride cable and wire(versatile plasticizer)	July 1st 2019
30	Diisobutyl phthalate(DIBP)		84-69-5	Diisobutyl phthalate; DIBP	0.1% by weight (1 000 ppm) in homogeneous material	L3	Plasticizer	July 1st 2019

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31	Hexabromocyclododecane ; HBCDD	25637-99-4 3194-55-6 134237-50-6 134237-51-7 134237-52-8 -	Cyclododecane, hexabromo-1,2,5,6,9,10-hexabromocyclododecane Alpha-hexabromocyclododecane; rel-(1R,2R,5S,6R,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane Beta-hexabromocyclododecane; rel-(1R,2S,5R,6R,9R,10S)-1,2,5,6,9,10-Hexabromocyclododecane Gamma-hexabromocyclododecane; rel-(1R,2R,5R,6S,9S,10R)-1,2,5,6,9,10-Hexabromocyclododecane Others	Intentional use banned	L14	Flame retardant	Immediate
32	PFOA - perfluorooctanoic acid and its salts, related substances Any related substance (including its salts and polymers) having a linear or branched perfluoroheptyl group with the formula C7F15- directly attached to another carbon atom, as one of the structural elements. Any related substance (including its salts and polymers) having a linear or branched perfluorooctyl group with the formula C8F17- as one of the structural elements. The following substances are excluded from this designation: — C8F17-X, where X = F, Cl, Br. — C8F17-C(=O)OH, C8F17-C(=O)O-X or C8F17-CF2-X (where X = any group, including salts).	335-67-1 -	PFOA - perfluorooctanoic acid Others	25 ppb of PFOA including its salts or 1 000 ppb of one or a combination of PFOA-related substances in homogeneous material	L14	vulcanizing agent	July 1st 2019

No	Substance/Category	CAS No	Examples of Substances	Control Level	Reference law	Examples of Use	To be banned
33	Hexachlorobenzene	118-74-1	Hexachlorobenzene	Intentional use banned	L14	disinfectant	Immediate

*1 The European Community's ban applies to azocolourants and azodyes that by reductive cleavage of azo groups release one of the aromatic amines listed in the Annex. The threshold level given applies to these amines, not to the azocolourants and azodyes.

*2 The battery reporting threshold level is based on the strictest known legal requirement. However, for simplification, the same reporting threshold level is set for all kind of batteries, even if the underlying legal requirement is only applicable for only one specific battery type. Concentration value shall be calculated by total weight of the battery.

*3 Commission Regulation (EU) No 276/2010 defines a concentration limit of 0.1% by weight of tin in the article or part thereof. Likewise Commission Decision 2009/251/EC defines a concentration limit of 0.00001% by weight of DMF in the product or part of the product and Commission Regulation (EC) No 552/2009 defines a concentration limit of 0.1% by weight of PFOS in the semifinished product or article or part thereof. Because no legal definition of part is provided in these legislations, the most potentially restrictive concentration limit is not adequately specified. Therefore, the concentration limit is applied at the level of a material vs. a part to ensure disclosure of the regulated substances for the most basic unit of a part.

*4 Regulatory thresholds for substances in these applications are based on emission or exposure limits rather than on the concentration in the product. Examples of regulatory limits are:

Formaldehyde in hardwood plyboard with veneer core – 0.05 ppm (measured as gaseous emission from product);

For Nickel in applications of prolonged skin contact - 0.5 micrograms/sq cm/week per DIN EN 1811;

Radioactive substances -a dose rate exceeding 1 $\mu\text{Sv h}^{-1}$ at a distance of 0.1 m.

Because emission and exposure levels cannot be derived from actual concentrations, a threshold level of “intentionally added” is indicated for reporting. Suppliers may choose to report a default concentration of 0.1% by weight in the product for these substances, in lieu of determining the exact concentrations in their products, to indicate that the substance is known to be present in their product, as the actual concentration in the product is not informative for regulatory compliance assessment.

*5 Total weight containing heavy metal such as lead, cadmium, mercury and hexavalent chrome per homogeneous material composing packaging (ex. Resin, ink, paint) shall be less than 100ppm by weight. Intentional adding is banned



Quality and Safety Management Center

HORIBA, Ltd.

TEL: +81-75-325-5086

URL : <http://www.horiba.co.jp>