

**MinebeaMitsumi Group  
Green Procurement Standard  
EM10507 Attachment  
Environmental Chemical Substances List  
Ver. 3.0**

- I Prohibited substances**
- II Substances scheduled to be prohibited**
- III Prohibited substances required by customer**
- IV Declarable substances**

**Issued : Apr. 01, 2019**

**Enforced : Jun. 01, 2019**

**MinebeaMitsumi Inc.**

## I Prohibited substances

Prohibited substances are prohibited or restricted by relevant domestic and overseas laws and regulations or international treaties, and they are chemical substances that may be contained in our products.

\*Unit of regulation value is ppm unless otherwise specified. Substances shall be controlled under the regulation values.

No.	Chemical substances (groups)	Objects of Regulations(segment)	MinebeaMitsumi Group regulation value (Unit; ppm)	Remarks: Major reference regulations
1	Cadmium and its compounds	<ul style="list-style-type: none"> <li>Resin, resin products, resin material (including rubber, film, etc.)</li> <li>paints, Inks, pigments, dyes, grease, oil, adhesives (The absence of volatile components)</li> </ul>	5	<ul style="list-style-type: none"> <li>RoHS Directive (2011/65/EU)</li> <li>EU REACH Regulation Annex X VII</li> </ul> <Exemption> Exempted applications by RoHS Directive
		<ul style="list-style-type: none"> <li>Lead-free solder (bar solder, wire solder, solder with flux, cream solder, solder balls)</li> <li>Solder joints on printing circuit board</li> <li>Solder plating of the part (such as a lead terminal)</li> <li>Tin-based plating of the part (Except the hot dipping)</li> </ul>	20	
		<ul style="list-style-type: none"> <li>Brass, zinc and zinc alloy</li> <li>Aluminum and aluminum alloy</li> <li>Metal plating part of the non-tin-based plating of parts</li> <li>Electroless nickel plating part</li> <li>Thick film paste material, resistor</li> </ul>	75	
		<ul style="list-style-type: none"> <li>All applications other than the above</li> </ul>	75	
2	Lead and its compounds	<ul style="list-style-type: none"> <li>Resin, resin products, resin material (including rubber, film, etc.)</li> <li>Paints, inks, pigments, dyes, grease, oil, adhesives (The absence of volatile components)</li> </ul>	100	<ul style="list-style-type: none"> <li>RoHS Directive (2011/65/EU)</li> </ul> <Exemption> Exempted applications by RoHS Directive
		<ul style="list-style-type: none"> <li>Lead-free solder (solder bar, a wire-solder, solder with flux, cream solder, solder balls)</li> </ul>	500	
		<ul style="list-style-type: none"> <li>Solder joints on printing circuit board</li> <li>Solder plating on part (lead terminal, including the molten solder plating)</li> <li>Tin-based plating part of the part</li> <li>Metal plating part except the tin-based plating of the part</li> <li>Electroless nickel plating part</li> </ul>	1,000	
		<ul style="list-style-type: none"> <li>All applications other than the above</li> </ul>	1,000	
3	Hexavalent chromium compounds	All uses	1,000	<ul style="list-style-type: none"> <li>RoHS Directive (2011/65/EU)</li> </ul> <Exemption> Exempted applications by RoHS Directive

4	Mercury and its compounds	All uses	Intentionally added or 1,000	•RoHS Directive (2011/65/EU) <Exemption> Exempted applications by RoHS Directive
5	Polybrominated biphenyls (PBB)	All uses	1,000	•RoHS Directive (2011/65/EU)
6	Polybrominated diphenyl ethers (PBDE)	All uses	1,000	•RoHS Directive (2011/65/EU)
7	Phthalate esters 4 substances below	Uses for electrical and electronic equipment	Each; 1,000	•RoHS Directive (2011/65/EU)
	Bis(2-ethylhexyl) phthalate (DEHP) (Another name : DOP) (CAS No. 117-81-7)	Uses for not electrical and electronic equipment, and for Toys or childcare products	DEHP, DBP, BBP, DIBP Total of 4 substances is less than 1,000	•EU REACH Regulation Annex XVII
	Dibutyl phthalate (DBP) (CAS No. 84-74-2)			
	Benzyl butyl phthalate (BBP) (CAS No. 85-68-7)			
Diisobutyl phthalate (DIBP) (CAS No. 84-69-5)				
8	Phthalate esters 3 substances below	Toys or childcare products	DINP, DIDP, DNOP Total of 3 substances is less than 1,000	•Taiwan CNS4797 (Safety standard for toys) •American Consumer Product Safety Improvement Act (CPSIA) •Japan Toy Safety Standard (ST Standard) •EU REACH Regulation Annex XVII
	Diisononyl phthalate (DINP) (CAS No. 28553-12-0) (CAS No.68515-48-0)			
	Diisodecyl phthalate (DIDP) (CAS No. 26761-40-0)			
	Di-n-octyl phthalate (DNOP) (CAS No. 117-84-0)			
9	Polychlorinated biphenyls (PCB)	All uses	Intentionally added or 50	•Chemical Substances Control Law •EU POPs Regulation Annex I
10	Polychlorinated naphthalenes (PCN) (1 or more chlorine atoms)	All uses	Intentionally added or 50	•Chemical Substances Control Law •EU POPs Regulation Annex I
11	Polychlorinated terphenyls (PCT)	All uses	Intentionally added or 50	•Chemical Substances Control Law •EU REACH Regulation Annex X VII
12	Asbestos	All uses	Intentionally added	•Industrial Safety and Health Act •Germany Chemicals prohibition ordinance •EU REACH Regulation Annex X VII
13	Short-chain chlorinated paraffin (carbon number 10-13) (CAS No.85535-84-8)	All uses	Intentionally added or 1,000	•Chemical Substances Control Law •EU POPs Regulation Annex I

14	Ozone Depleting Substances * Montreal Protocol on Substances that Deplete the Ozone Layer Appendix A (Group I, II) Appendix B (Group I, II, III) Appendix C (Group I, II, III) Appendix E (Group I)	All uses	Intentionally added	• Act for Protection of the Ozone Layer through Regulation of Designated Substances • EU Regulation ((EC)No .1005/2009)
15	Hydrofluorocarbon (HFC), Perfluoro carbon (PFC), Sulfur hexafluoride(SF6)	All uses	Intentionally added	EU Regulation (EU) No .517/2014
16	Bis (tributyl tin) = oxide (TBTO) (CAS No.56-35-9)	All uses	Intentionally added or 1,000 as Tin atom	• Chemical Substances Control Law • EU REACH Regulation Annex X VII
17	Trisubstituted organotin (Tributyl tin (TBT) compounds, Triphenyl tin (TPT) compounds, etc.)	All uses	Intentionally added or 1,000 as Tin atom	• Chemical Substances Control Law • EU REACH Regulation Annex X VII
18	Dibutyl tin (DBT) compounds	All uses	1,000 as Tin atom	• EU REACH Regulation Annex X VII
19	Diocetyl tin (DOT) compounds	Only subject to the following: • Textile products in contact with human skin • Toys and childcare articles • 2 solution at room temperature curing (RTV-2) molding kit	1,000 as Tin atom	• EU REACH Regulation Annex X VII
20	Specified amines compounds and some azo dye and pigment forming specified amines (coloring agent) (*1)	All uses	30	• EU REACH Regulation Annex X VII
21	Formaldehyde; Formalin (CAS No. 50-00-0)	Timber products (e.g. speakers and racks) which are made of fiber boards, particle board, or plywood	0.1 (Chamber method)	• Germany Chemicals prohibition ordinance
22	Nickel and its compounds	Parts that are in contact with human skin for a prolonged time (e.g. earphones, headphones)	0.5µg/cm <sup>2</sup> /week Test Standard EN1811 : 2011 +A1 : 2015	• EU REACH Regulation Annex XVII
23	Arsenic and its compounds (including Diarsenic trioxide, Diarsenic pentoxide)	Only use of wood preservatives, antifoam agents or fining agents for the glasses	1,000	• EU REACH Regulation Annex XVII
24	Radioactive substances	All uses	Intentionally added	• Laws Concerning the Prevention from Radiation Hazards due to Radioisotopes and Others
25	Perfluorooctane sulfonates (PFOS) and its salt	All uses	Intentionally added or Article : 1,000 Substances, Mixture : 10	• Chemical Substances Control Law • EU POPs Regulation Annex I
26	Perfluorooctanoic acid (PFOA) and its salts and PFOA-related substances (*2)	All uses	Perfluorooctanoic acid (PFOA) and its salts : 25ppb PFOA-related substances : In total 1000ppb (1ppm)	• Norway Prohibition on Certain Hazardous Substances in Consumer Products • EU REACH Regulation Annex XVII

27	Specific benzotriazole 2-(2H-1,2,3-Benzotriazol-2-yl)-4,6-di-tert-butylphenol (UV-320) (CAS No.3846-71-7)	All uses		Intentionally added	• Chemical Substances Control Law
28	Cobalt chloride (CAS No.7646-79-9)	All uses		Intentionally added or 1,000	• Chemical Substances Control Law
29	Beryllium oxide (CAS No.1304-56-9)	All uses		Intentionally added or 1,000	• Industrial Safety and Health Act
30	Dimethylfumarate (DMF) (CAS No.624-49-7)	All uses		0.1	• EU REACH Regulation Annex XVII
31	Tris(2-chloroethyl) phosphate (TCEP) (CAS No. 115-96-8)	All uses		1,000	• EU REACH Regulation Annex XIV • State of Vermont Regulation
32	Tris(1-chloro-2-propyl) phosphate (TCPP) (CAS No.13674-84-5)	Use of flame retardants for resin or textile		1,000	• State of Vermont Regulation
33	Tris(1,3-dichloro-2-propyl) phosphate (TDCPP) (CAS No.13674-87-8)	Use of flame retardants for resin or textile		1,000	• State of Vermont Regulation
34	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified	All uses		Intentionally added or 100	• Chemical Substances Control Law • EU REACH Regulation Annex XIV • EU POPs Regulation Annex I
35	PAHs(8 substances below)	Rubber and plastic parts that come into direct as well as prolonged or short-term repetitive contact with the human skin or the oral cavity	Toys	Each substance: 0.5	• EU REACH Regulation Annex XVII
	Benzo[a]pyrene (CAS No. 50-32-8)				
	Benzo[e]pyrene (CAS No. 192-97-2)				
	Benz[a]anthracene (CAS No. 56-55-3)				
	Chrysene (CAS No. 218-01-9)				
	Benzo[b]fluoranthene (CAS No. 205-99-2)		Articles other than toys	Each substance 1	
	Benzo[j]fluoranthene solution (CAS No.205-82-3)				
	Benzo[k]fluoranthene (CAS No. 207-08-9)				
Dibenz[a,h]anthracen (CAS No. 53-70-3)					
36	Halogenated diphenylmethane (*3)	All uses		Intentionally added	• EU REACH Regulation Annex XVII
37	Benzene (CAS No. 71-43-2)	Toys or products for children		5	• EU REACH Regulation Annex XVII
		Substances or mixture		1,000	
38	Tris(1-aziridinyl)phosphine oxide (TAPO) (CAS No. 545-55-1)	Textile products in contact with human skin directly		Intentionally added	• EU REACH Regulation Annex XVII
39	Tris(2,3-dibromopropyl) phosphate (TBPP) (CAS No. 126-72-7)	Textile products in contact with human skin directly		Intentionally added	• EU REACH Regulation Annex XVII
40	Perchlorates	All uses		0.006 of parts	• State of California Perchlorate Contamination Prevention Act

41	2,4,6-Tri-tert-butylphenol (CAS No. 732-26-3)	All uses	Intentionally added	• Chemical Substances Control Law
42	Hg, Cd, Cr(VI), Pb	Packing/Packaging material	In total; 100	• EU Regulation (94/62/EC)

(\*1) Specified amines compounds

No.	Chemical substances	CAS No.
1	4-aminoazobenzene	60-09-3
2	o-anisidine	90-04-0
3	2-naphthylamine	91-59-8
4	3,3'-dichlorobenzidine	91-94-1
5	4-aminodiphenyl	92-67-1
6	Benzidine	92-87-5
7	o-toluidine	95-53-4
8	4-chloro-o-toluidine	95-69-2
9	2,4-toluenediamine	95-80-7
10	o-aminoazotoluene	97-56-3
11	5-nitro-o-toluidine	99-55-8
12	4,4'-methylene-bis-(2-chloroaniline)	101-14-4
13	4,4'-diaminodiphenylmethane	101-77-9
14	4,4'-oxydianiline	101-80-4
15	p-chloroaniline	106-47-8
16	3,3'-dimethoxybenzidine	119-90-4
17	3,3'-dimethylbenzidine	119-93-7
18	p-cresidine	120-71-8
19	2,4,5-trimethylaniline	137-17-7
20	4,4'-thiodianiline	139-65-1
21	2,4-diaminoanisole	615-05-4
22	3,3'-dimethyl-4,4'-diaminodiphenylmethane	838-88-0

(\*2) PFOA-related substances

All related substances including salts and polymers with linear or branched perfluoroheptyl (C7F15-) or perfluorooctyl (C8F17-) groups directly bonded to another carbon molecule.

(\*3) Halogenated diphenylmethane

No.	Chemical substances	CAS No.
1	Monomethyl-tetrachloro-diphenyl methane	76253-60-6
2	Monomethyl-dichloro-diphenyl methane	81161-70-8
3	Monomethyl-dibromo-diphenyl methane	99688-47-8

## II Substances scheduled to be prohibited

Chemical substances that have an expiration date by relevant law, regulation and international treaties and agreements. They must not be contained in products greater than threshold after an expiration date and are treated as prohibited substances from the date. And Supplier may be prohibited from using these substances before an expiration date if MinebeaMitsumi Group's customer requires. MinebeaMitsumi Group's relevant business unit will request as needed. Currently, there is no substance of Substances scheduled to be prohibited.

### III Prohibited substances required by customer

Chemical substances that are prohibited from being used in certain products by certain customers' requirements or industry standards. Warrant that the regulation values are met, in case that Certificate of Non-Use of prohibited Chemical Substances and other request form describe that using these chemical substances is prohibited.

\*Unit of regulation value is ppm unless otherwise specified. Substances shall be controlled under the regulation values.

No.	Chemical substances (groups)	Objects of Regulations	MinebeaMitsumi Group regulation value (Unit; ppm)		Remarks:
1	Natural rubber	All uses	Intentionally added		
2	Phthalates (*1)	All uses	In total; 1,000		
3	Bromine (including Brominated flame retardants (BFRs))	All uses	900	Br + Cl; 1,500	Due to request for halogen-free
4	Chlorine (including Chlorinated flame retardants(CFRs))	All uses	900		Due to request for halogen-free
5	Antimony and its compounds (including Diantimony trioxide)	All uses	1,000		
6	TBBP-A (CAS No. 79-94-7)	All uses	1,000		
7	Beryllium and its compounds	All uses	Intentionally added or 1,000		
8	PVC ; Polyvinyl chloride and its mixtures (Including copolymers) (CAS No. 9002-86-2, and others)	All uses	Intentionally added		
9	Organotin (*2)	All uses	In total; 1,000		
10	Arsenic and its compounds	All uses Exemption; dopant used for manufacturing semiconductor devices	Intentionally added		
11	Bisphenol A (CAS No. 80-05-7)	Polycarbonate	250		Notice: Each business unit may ask a threshold different from the value described in the left column.
		Resin except Polycarbonate	50		
		Other than the above	Intentionally added		
12	Chlorinated Paraffin (medium-chain/long-chain)	All uses	1,000		
13	Trichlorobenzene (CAS No. 120-82-1, 87-61-6, 108-70-3)	All uses	1,000		
14	Cyclohexane (CAS No.110-82-7)	Only use of adhesive	1,000		
15	Low molecular siloxane, silicone polymer, organosilicon	All uses	Intentionally added		Non-conformance for Quality control
16	Sulfur	All uses	Intentionally added		Non-conformance for Quality control
17	Red phosphorus (CAS No. 7723-14-0)	Flame retardant for resin	Intentionally added		Non-conformance for Quality control
18	Nonylphenol and nonylphenol ethoxylate	All uses	Intentionally added		

19	N-Phenyl-benzenamine reaction products with styrene and 2,4,4-trimethylpentene (BNST) (CAS No.68921-45-9)	All uses except rubber material; however, rubber material for tires is covered	Intentionally added	
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(\*1) Phthalates

No.	Chemical substances	CAS No.
1	1,2-Benzenedicarboxylic acid, di-C6-8-branched alkylesters, C7-rich (DIHP)	71888-89-6
2	1,2-Benzenedicarboxylic acid, di-C6-10-alkyl esters ; 1,2-Benzenedicarboxylic acid, mixed decyl and hexyl and octyl diesters with $\geq 0.3\%$ of dihexyl phthalate	68515-51-5 68648-93-1
3	1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkylesters (DHNUP)	68515-42-4
4	1,2-Benzenedicarboxylic acid, dipentylester, branched and linear (DPP)	84777-06-0
5	Bis(2-methoxyethyl) phthalate (DMEP)	117-82-8
6	Diethyl phthalate (DEP)	84-66-2
7	Diisodecyl phthalate (DIDP)	26761-40-0 68515-49-1
8	Diisononyl phthalate (DINP)	28553-12-0 68515-48-0
9	Diisopentyl phthalate (DIPP)	605-50-5
10	Dimethyl phthalate (DMP)	131-11-3
11	Di-n-hexyl phthalate (DnHP)	84-75-3
12	Di-n-octyl phthalate (DNOP)	117-84-0
13	Di-n-pentyl phthalate (DnPP)	131-18-0
14	n-pentyl-isopentyl phthalate (nPIPP)	776297-69-9

(\*2) Organotin

No.	Chemical substances	CAS No.
1	Monobutyltin (MBT) compounds	multiple
2	Monooctyltin (MOT) compounds	multiple
3	Dibutyltin (DBT) compounds	multiple
4	Diocetyl tin (DOT) compounds	multiple
5	Tetrabutyltin (TeBT) compounds	multiple
6	Tetraoctyltin (TeOT) compounds	multiple
7	Tributyltin (TBT) compounds	multiple
8	Tricyclohexyltin (TCyT) compounds	multiple
9	Triphenyltin (TPhT) compounds	multiple



## IV Declarable substances

Substances that are required to communicate information by regulations and/or industry standards, and to collect and provide information by Supplier and through supply chain.

\*Unit of regulation value is ppm unless otherwise specified. Substances shall be controlled under the regulation values.

No.	Chemical substances (groups)	CAS No.	Objects of Regulations	Regulation value (Units; ppm)	Remarks: Major reference regulations
1	REACH Regulation Substances of Very High Concern (SVHC) (*1) (*2) (*3)	---	All uses	-	EU REACH Regulation
2	Substituted diphenylamine (*4)	---	All uses	Intentionally added	Canadian Environmental Protection Act
3	Ethanol, 2-((2-aminoethyl)amino)-	111-41-1	All uses	Intentionally added	Canadian Environmental Protection Act

(\*1) Supplier shall obtain the latest candidate list of SVHC at the ECHA official site and control them.

ECHA Candidate List URL <http://echa.europa.eu/web/guest/candidate-list-table>

(\*2) When SVHCs are newly added to the candidate list from now on, the SVHCs are subject to Declarable Substances at the time. Therefore, Supplier shall establish a system to provide information about SVHC immediately, when SVHCs are newly added to the candidate list.

(\*3) When SVHC is described in 'Prohibited Substances', 'Prohibited substances required by customer' and 'Substances scheduled to be prohibited', that substance is subject to controlled substances in the relevant category. However, an object of regulations and controlled values differ, depending on the relevant category.

(\*4) Substituted diphenylamine

No.	Chemical substances	CAS No.
1	Benzenamine, 4-octyl-N-(4-octylphenyl)-	101-67-7
2	Benzenamine, 4-octyl-N-phenyl-	4175-37-5
3	Benzenamine, 4-(1-methyl-1-phenylethyl)-N-(4-(1-methyl-1-phenylethyl)phenyl)-	10081-67-1
4	Benzenamine, 4-(1,1,3,3-tetramethylbutyl)-N-[4-(1,1,3,3-tetramethylbutyl)phenyl]-	15721-78-5
5	Benzenamine, 4-nonyl-N-(4-nonylphenyl)-	24925-59-5
6	Benzenamine, ar-octyl-N-(octylphenyl)-	26603-23-6
7	Benzenamine, ar-octyl-N-phenyl-	27177-41-9
8	Benzenamine, ar-octyl-N-(nonylphenyl)-	36878-20-3
9	Benzenamine, N-phenyl-, reaction products with 2,4,4-trimethylpentene	68411-46-1
10	Benzenamine, N-phenyl-, styrenated	68442-68-2
11	Benzenamine, 2-ethyl-N-(2-ethylphenyl)-, (tripropenyl) derivatives	68608-77-5
12	Benzenamine, N-phenyl-, (tripropenyl) derivatives	68608-79-7
13	Benzenamine, N-phenyl-, reaction products with isobutylene and 2,4,4-trimethylpentene	184378-08-3

### Revision history

Revision	Revised date	Revised contents
2.00	February.01,2018	Completely revised
3.0	April.01.2019	<ul style="list-style-type: none"><li>▪ Changed four phthalate esters (DEHP, DBP, BBP, DIBP) from Substances scheduled to be prohibited to Prohibited substances and divided into applications regulated by the RoHS Directive and applications regulated by the REACH Regulation.</li><li>▪ Set group regulation values of 3 phthalate esters (DINP, DIDP, DNOP) of object for toys and childcare products to 1000 ppm in total of 3 substances.</li><li>▪ Changed N-Phenyl-benzenamine reaction products with styrene and 2,4,4-trimethylpentene (BNST) from Prohibited substances to Substances scheduled to be prohibited.</li><li>▪ Changed "PFOA and its salts and esters" to "PFOA, its salt and PFOA-related substances" and change the group regulation value to PFOA salt: 25 ppb, PFOA-related substances : In total 1000 ppb (1ppm).</li></ul>